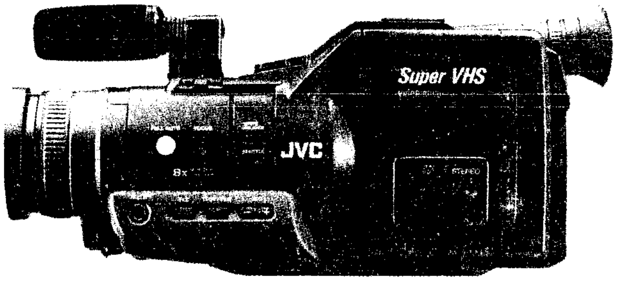
JVC

SERVICE MANUAL

VHS VIDEO MOVIE

GR-S505U

CCD
Charge Coupled Device
FULL RANGE AF
Hi-Fi
STEREO



Super VHS
videomovie
SVHSC
HQ
High Quality

SPECIFICATIONS *(The specifications shown pertain specifically to the model GR-S505U for USA.)*

Format	SVHS NTSC standard with Hi-Fi audio
Power source	DC 9.6 V ⎓
Power consumption	9.5 W
Signal system	NTSC-type color signal and separated Y/C signals conforming to NTSC standard
Video recording system	Luminance: FM recording Color: Converted sub-carrier direct recording Conforms to SVHS standard conforming to stereo Hi-Fi
Hi-Fi audio recording system	Deep-layer recording system VHS standard
No. of audio channels	2 Hi-Fi audio channels 1 normal audio channel
Cassette	SVHSC / VHSC cassette
Tape speed (SP)	33.35 mm/sec (1-5/16 ips)
(EP)	11.12 mm/sec (7/16 ips)
Recording time	
Max. (SP)	30 minutes (with ST-C30 cassette)
(EP)	90 minutes (with ST-C30 cassette)
VIDEO	
Output	1 Vp-p, 75 ohms, unbalanced (via AV OUT connector)
S/N ratio	More than 42 dB (with Rohde & Schwarz noise meter)
AUDIO	
Output	–6 dBs, 1 k-ohm (via AV OUT connector).
Microphone input	–68 dBs, high impedance, unbalanced
Hi-Fi AUDIO	
Frequency response	20 Hz to 20,000 Hz
Wow and flotter	Less than 0.005% WRMS
Pick up	1/2"-format CCD
Minimum required illumination	5 lux (0.5 fc) (at F/1.4)
Illumination range	5 to 100,000 lux (0.5 to 9,300 fc)
Lens	F/1.4, f = 8.5 to 68 mm, 8:1 power zoom lens with auto iris and macro control, filter diameter 52 mm
Viewfinder	Electronic viewfinder with 0.6" black/white CRT
Selectable high-speed shutter	Switchable (1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 second)
White balance adjustment	Full-auto/preset standard
Color temperature	Switchable (3,200K/4,500K/5,500K)
Operating temperature	0°C to +40°C (32°F to 104°F)
Operating humidity	35 % to 80%
Storage temperature	–20°C to +50°C (–4°F to 122°F)
Weight	1.1 kg (2.5 lbs) (with viewfinder)
Dimensions	106(W) x 130(H) x 288(D) mm (4-3/16" x 5-1/8" x 11-3/8") (incl. viewfinder)

AA-V6U SPECIFICATIONS

Power requirement	U.S. and Canada: AC 120 V∿, 60 Hz Other countries: AC 110 to 240 V∿, 50/60 Hz
Power consumption	23 W
Output	DC 14 V ⎓, 1.1 A (Charge) DC 9.6 V ⎓, 1.2 A (VideoMovie)
Charging system	Constant current, peak detection, timer controlled
Dimensions	150(W) x 42(H) x 69(D) mm (5-15/16" x 1-11/16" x 2-3/4")
Weight	Approx. 360 g (0.8 ibs)

C-P6U SPECIFICATIONS

Type	VHS cassette adapter
Dimensions	188(W) x 25(H) x 104(D) mm (7-7/16" x 1" x 4-1/8")
Weight	240 g (0.53 lbs)
Accessory	"AA"-size battery x 1

RF-V3U SPECIFICATIONS

VHF output channel	Channel 3 or 4 (switchable)
Initial channel setting	Channel 3
Power source	DC 8 V ⎓, 20 mA (from VideoMovie)
Dimensions	52(W) x 80(H) x 24(D) mm (2-1/16" x 3-3/16" x 1")
Weight	Approx. 160 g (0.35 lbs)

PROVIDED ACCESSORIES

AC power adapter/battery charger	AA-V6U
Battery pack	BN-V6GU
RF unit	RF-V3U
S-VIDEO cable	VC-V44U
A/V output cable	VC-V8632U
Cassette adapter	C-P6U
S-VHS-C cassette tape	ST-C20
Battery for clock operation	CR2025
Shoulder strap	
Title Easel	

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

No. 86114
September 1990

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NOTE: For a technical description, please refer to Technical Guide VTG86022 GR-S505 NTSC.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: **Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.**

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

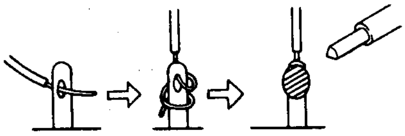


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

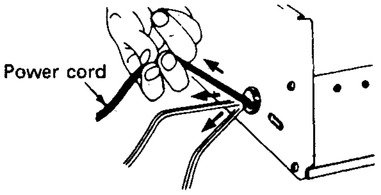


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

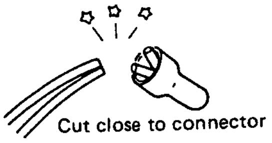


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

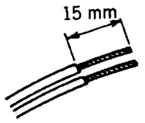


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

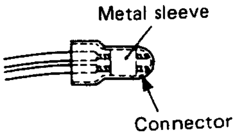


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

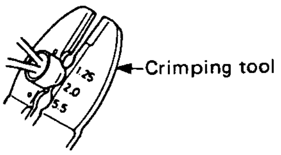


Fig. 6

(5) Check the four points noted in Fig. 7.

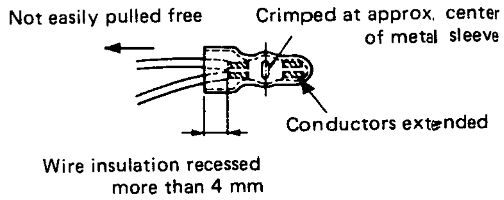

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

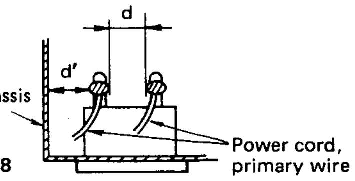


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

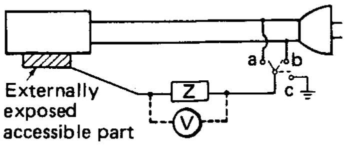


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

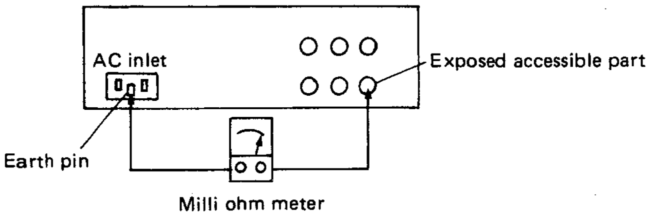


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC

INSTRUCTIONS

GR-S505

CAMERA-RECORDER/PLAYER

Specifically for the GR-S505U/AA-V6U

Super VHS
videomovie

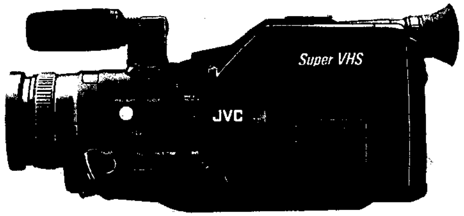
S-VHS C

HQ
High Quality

CCD
Charge Coupled Device

AF
FULL RANGE AF

Hi-Fi
STEREO



For Customer Use:
Enter below the Serial Nos. of the GR-S505U VideoMovie and the AA-V6U AC Power Adapter/Battery Charger.
The former is located on the bottom of the GR-S505U and the latter, on the bottom of the AA-V6U.

Model No.	GR-S505U	AA-V6U
Serial No.		

YU30052-143

Thank you for purchasing the JVC GR-S505U Compact Super VHS Hi-Fi Stereo VideoMovie. This unit provides a breathtaking improvement in picture and sound quality, with excellent picture resolution and superb audio dynamic range, that double your video moviemaking enjoyment. Learn about all the available features and take advantage of them for your total moviemaking enjoyment.

Before using this VideoMovie, read this instruction booklet carefully so that you will obtain the best results from your GR-S505U.

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SAFETY PRECAUTIONS

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The AA-V6U AC Power Adapter/Battery Charger should be used with:
AC 120 V∿, 60 Hz in the USA and Canada,
AC 110–240 V∿, 50/60 Hz in other countries.

CAUTION (applies to the AA-V6U)
TO PREVENT ELECTRIC SHOCK DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

SVHSC

Cassettes marked SVHSC and VHSC can be used with this VideoMovie. However, S-VHS recordings are possible only with cassettes marked SVHSC.

Warning on lithium battery

The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.
Replace battery with Panasonic (Matsushita Electric) CR2025; use of another battery may present a risk of fire or explosion.

- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

This equipment should be used with DC 9.6 V ⎓ only.
CAUTION:
To prevent electric shocks and fire hazards, do NOT use any other power source.

NOTES:

- The rating plate (serial number plate) and safety caution are on the bottom of the main unit.
- The rating plate (serial number plate) of the viewfinder is on its bottom.
- The rating plate (serial number plate) of the AC power adapter/battery charger is on its bottom.

You are recommended to carefully read the cautions on pages 37 and 38 before use.

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Division of US JVC CORP.
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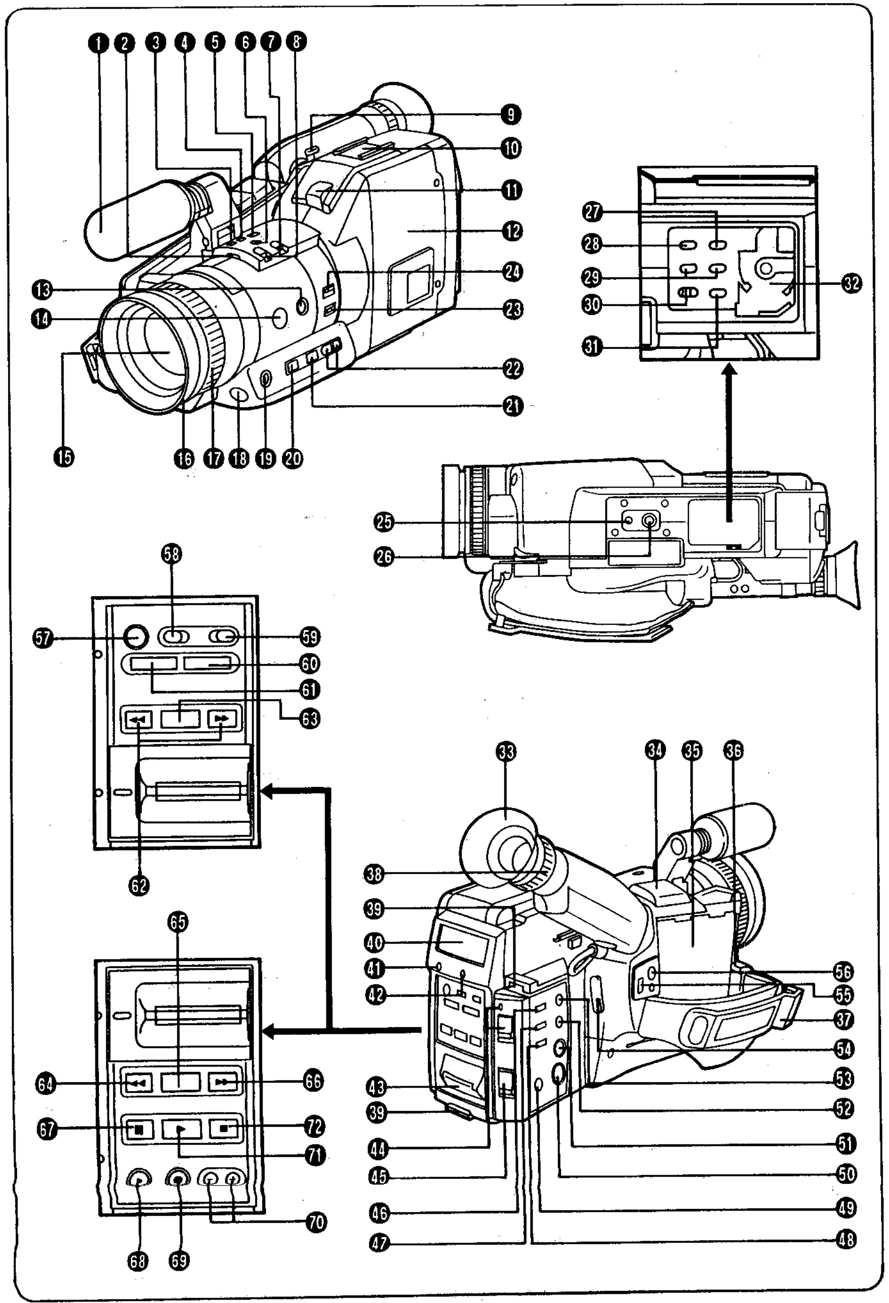
MAJOR FEATURES

- **Super VHS and Hi-Fi VHS Stereo with built-in stereo microphone**
- **Newly-developed 1/2" high-resolution CCD with 410,000 pixels (total)**
- **Super AV-9 Head system**
- **5-Lux low-light sensitivity**
- **Variable-speed electronic shutter: 1/10000, 1/4000, 1/2000, 1/1000, 1/500, 1/250, 1/125, 1/100, and 1/60-sec.**
- **Digital AV Tracking**
- **Precision Full Range AF system with Auto Macro shooting and Electro-Manual Power Focus**
- **Manual override of iris (±15-step EF compensation) and white balance (3-position preset)**
- **4-Page Digital Superimpose (8 colors, nega/posi) with 8-color scene/title fading**
- **Variable time-lapse, animation, and self-timer functions**

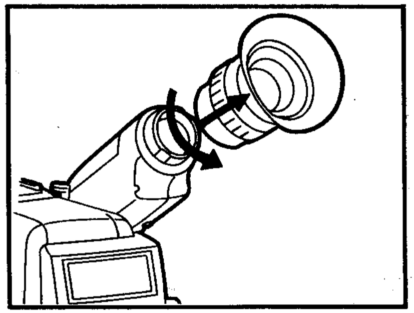
INFORMATION
This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Change or modifications not approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

The GR-S505U is designed to be used with NTSC-type color television signals. It cannot be used for playback with a television of a different standard. However, live recording and viewfinder playback are possible anywhere. Use the BN-V5GU/BN-V6GU/BN-V7GU battery packs and, to recharge them, the provided multi-voltage AC power adapter/battery charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)



CONTROLS AND CONNECTORS

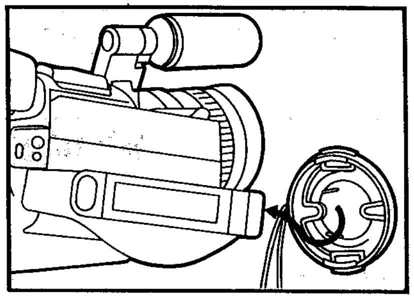
No.		Page
①	Stereo microphone	9
②	Tally lamp	12
③	COLOR button	19
④	REVERSE button	19
⑤	TITLE MEMORY button	19
⑥	TITLE PAGE button	19
⑦	TITLE FADER button	21
⑧	TITLE ON/OFF button	19
⑨	Viewfinder slide knob	9
⑩	Accessory shoe	33
⑪	White balance sensor window	36
⑫	Cassette holder	9
⑬	FOCUS button	15
⑭	FULL AUTO button	15
⑮	8:1 zoom lens	
⑯	Lens hood	
⑰	Manual focus ring	15
⑱	Second Recording Start/Stop button (SUB-TRIGGER)	12
⑲	FADER reservation button	21
⑳	BLC button	18
㉑	DATE/TIME button	13
㉒	IRIS +/– buttons	17
㉓	SHUTTER button	18
㉔	WHITE BALANCE button	18
㉕	Stud hole	33
㉖	Tripod mounting socket	33
㉗	DATE/TIME SELECT button	10
㉘	DATE/TIME MODE button	13
㉙	DATE/TIME SET button	10
㉚	REC TIME ON/OFF switch	12
㉛	REC TIME RESET button	12
㉜	Clock battery compartment	10
㉝	Eyepiece	



Cleaning the eyepiece
The viewfinder eyepiece can be removed for cleaning. Turn the eyepiece counterclockwise and pull it out.

㉞	Power zoom buttons	16
㉟	Battery pack mount	7
㊱	Battery pack release lever	7

㊲ Lens cap hook



This keeps the lens cap from swinging during shooting.

㊳	Dioptric adjustment control	9
㊴	Eyelet for attaching the shoulder strap	33
㊵	LCD (Liquid Crystal Display) panel	4
㊶	COUNTER MEMORY button	26
㊷	COUNTER RESET button	26
㊸	Control panel door	11
㊹	POWER switch/indicator	11
㊺	EJECT switch	9
㊻	AUDIO OUT mode select switch	6
㊼	DUBBING ON/OFF switch	30
㊽	S-VHS recording mode select switch	5
㊾	DC IN terminal	7
㊿	S-OUT connector	27
(51)	A/V OUT connector	27
(52)	REMOTE jack	34
(53)	Headphone (PHONES) jack	25
(54)	Recording Start/Stop button	11
(55)	MIC select switch	33
(56)	External MIC jack	33
(57)	VISS button	13
(58)	Recording mode select switch	11
(59)	ALARM ON/OFF switch	12
(60)	INTERVAL button	24
(61)	REC TIME button	23
(62)	RETAKE buttons	14
(63)	QUICK REVIEW button	12
(64)	REW/SHUTTLE SEARCH button	25
(65)	EDIT button	30
(66)	FF/SHUTTLE SEARCH button	25
(67)	PAUSE/MONITOR button	11
(68)	INSERT button	32
(69)	AUDIO DUB button	32
(70)	TRACKING (+/–) button	26
(71)	PLAY button	25
(72)	STOP button	11

VIEWFINDER AND LCD INDICATIONS

Recording

Viewfinder	LCD	Mode/Status
"_" or "EP_"	●II	Record-Standby
"REC" or "EP REC"	●	Recording
ANIM ● 1/4S	● 1/4	Animation
S. TIMER ●II 1 MIN	●II 60	Self-timer
T. LAPSE ● 1/4S ●II 1 MIN	● 1/4 ●II 60 Alternatly appearing	Time-lapse
S1000		Shutter speed
FADER		Fader
AF/OFF		Manual Focus
JAN.1.90 AM 11:59		Date/time
✳ ▬ ✳		White balance
◪		Backlight compensation
+15		Iris control
⊡ BLACK		Title page/color
INDEX	● Blinking	Index code marking
	▶▶ or ▶◀◀ Blinking	Retake
	▶	Insert editing
	⊖	Audio dubbing
0:00:00		Rec time counter
	0M	Counter memory

Playback

Viewfinder	LCD	Mode/Status
	■	Stop
	▶	Playback
	II	Pause
	◀◀	Rewind
	▶▶	Fast-forward
	▶◀◀	Reverse Shuttle Search
	▶▶▶	Forward Shuttle Search

Warnings

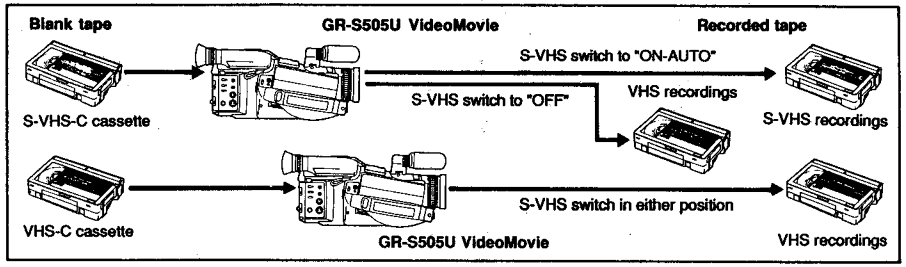
Viewfinder	LCD	Mode/Status
▬ BATT. Blinking	▭ Blinking	Battery warning
▬ CLOCK Blinking		Clock battery warning
CASSETTE Blinking		Cassette warning
💧 DEW Blinking	💧 Blinking	Condensation warning
LIGHT Blinking		Low-light warning
	● Blinking	Tape-end warning

On-Screen Display
The viewfinder indications can also be displayed on the screen of a monitor connected to the GR-S505U. See page 13.

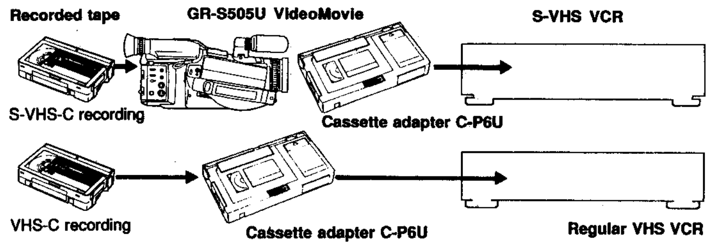
FOR A BETTER UNDERSTANDING OF S-VHS AND VHS

Compatibility between S-VHS and VHS

Recording

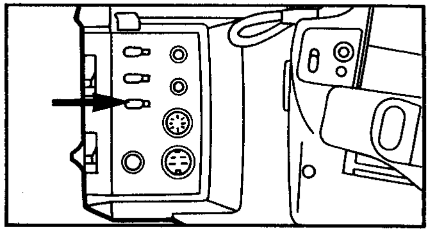

Blank tape
GR-S505U VideoMovie
Recorded tape
S-VHS switch to "ON-AUTO"
S-VHS switch to "OFF"
VHS recordings
S-VHS-C cassette
S-VHS recordings
S-VHS switch in either position
VHS-C cassette
GR-S505U VideoMovie
VHS recordings

Playback


Recorded tape
GR-S505U VideoMovie
S-VHS VCR
S-VHS-C recording
Cassette adapter C-P6U
VHS-C recording
Cassette adapter C-P6U
Regular VHS VCR

- The recorded format (S-VHS or VHS) is automatically detected when playback begins.
- S-VHS recorded tapes cannot be viewed on regular VHS VCRs.

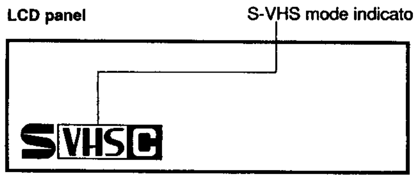
Selecting the S-VHS/VHS mode



1. Set the mode select switch to "ON-AUTO". The GR-S505U automatically detects the type of cassette so that the appropriate mode is automatically selected.
   With a cassette marked "S-VHS-C": S-VHS mode (The S-VHS mode indicator lights.)
   With a cassette marked "VHS-C": VHS mode
2. Set this switch to "OFF". The VHS mode always remains in effect, regardless of the cassette used.

S-VHS mode indicator

The S-VHS mode indicator remains lit while the GR-S505U is in the S-VHS mode. (When the S-VHS mode select switch is set to "ON-AUTO" and an S-VHS-C cassette is inserted.) It also remains lit when playing back S-VHS programs recorded on an S-VHS-C cassette.


LCD panel
S-VHS mode indicator
S VHS C

Note:
With the switch set to "ON-AUTO", in playback, if regular VHS signals are recorded on an S-VHS-C cassette, the GR-S505U switches to the VHS mode automatically. At the same time, the S-VHS mode indicator goes off.

INFORMATION ON THE GR-S505U'S AUDIO SYSTEM

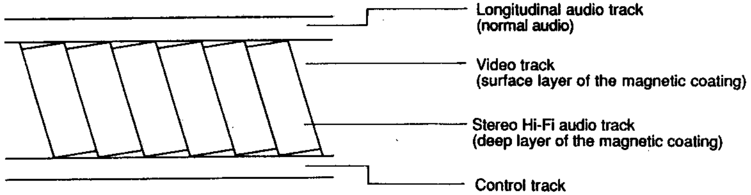
Hi-Fi and normal audio

To provide true Hi-Fi audio accompaniment to Super VHS entertainment, the GR-S505U employs a unique audio recording system.

CAUTIONS:

- The Hi-Fi soundtrack recorded with the GR-S505U cannot be reproduced with video equipment other than Hi-Fi VHS.
- Tapes recorded with a conventional stereo video recorder produce monaural sound when played back with the GR-S505U.

Tape pattern recorded with GR-S505U



Hi-Fi audio recording and reproduction are available only from the Hi-Fi audio track while the longitudinal audio track provides normal audio.

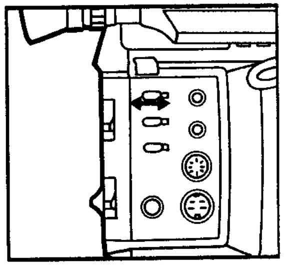
The Hi-Fi and normal soundtracks are recorded simultaneously.

Set the MIC select switch according to the microphone used.

STEREO: When using the built-in microphone or when an external stereo microphone is connected.

MONO: When an external monaural microphone is connected.

When monitoring audio during playback



Set the AUDIO OUT mode select switch according to the audio track you wish to listen to. (Also effective when monitoring with the provided stereo earphones connected to PHONES jack.)

NORM: To listen to the sound recorded on the longitudinal (normal) audio track.

MIX: To listen to the sound recorded on both Hi-Fi and longitudinal audio tracks (mixed audio).

Hi-Fi: To listen to the sound recorded on the Hi-Fi audio track.

- When playing back a tape containing the same soundtrack on both hi-fi and normal audio tracks, a slight time lag is sensed between the two sound tracks, probably with some distortion, in the MIX position. Therefore, in such a case, use the NORM or Hi-Fi position.

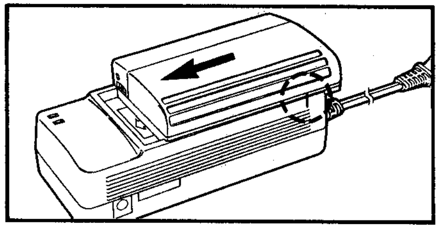
POWER SUPPLY SYSTEM

The convenient 3-way power supply system gives you a choice of the most appropriate power supply unit, depending on the application.

WITH BATTERY PACK

The battery pack has been kept in the uncharged state for shipment. Therefore, before use, be sure to charge it.

Charging procedure



1. Connect the AC power cord to a wall outlet. (The POWER indicator will light)
2. Align the marks on the battery pack and adapter.
3. Slide the battery pack in the direction of the arrow until it locks in place.
4. When charging is completed, the CHARGE indicator that is red turns green.

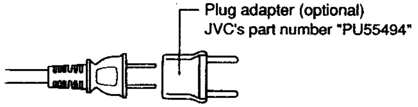
- The charging time differs depending on the ambient temperature and the condition of the battery pack.

When using the AA-V6U in areas other than the USA

USING HOUSEHOLD AC PLUG ADAPTER

In case of connecting the unit's power cord to an AC wall outlet other than American National Standard C73 series type use an AC plug adapter, called a "Siemens Plug", as shown below.

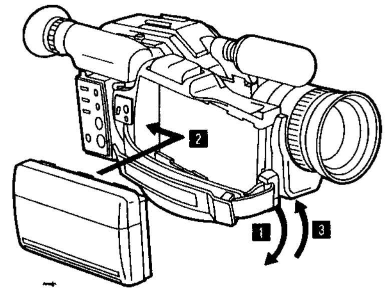
For this AC plug adapter, consult your nearest JVC dealer.



Charging time

BN-V5GU: 50 min.	BN-V7GU: 80 min.
BN-V6GU: 70 min.	

Attaching the battery pack



1. Pull down the battery pack release lever.
2. Align the battery pack over the outline in the battery pack mount, and slide the battery pack into place in the direction of the arrow.
3. Push up on the battery pack release lever, unit it locks into place.

- To remove the battery pack, pull down the battery pack release lever and slide out the battery.

Recording time for the GR-S505U

BN-V5GU: 20 min.	BN-V7GU: 75 min.
BN-V6GU: 50 min.	

- The recording time per charge is influenced by the duration of recording standby, frequency of zooming, etc. It is safer to have spare battery packs.

PRECAUTIONS

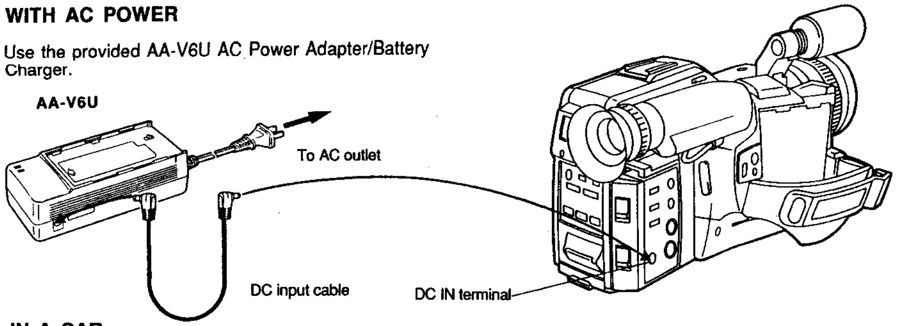
- If used near a radio, the provided AA-V6U AC power adapter/battery charger may interfere with reception.
- Prevent inflammables, water and metallic objects from entering the unit.
- Do not disassemble or modify the unit.
- Do not apply shocks to the unit.
- Do not subject the unit to direct sunlight.
- Avoid using the unit in extremely hot or humid places.
- Avoid using the unit in places subject to vibrations.

CAUTIONS

- No function is available without power supply.
- Do not use any power supply other than specified.
- Never attempt to use these power supply units with any equipment other than the VideoMovie.

WITH AC POWER

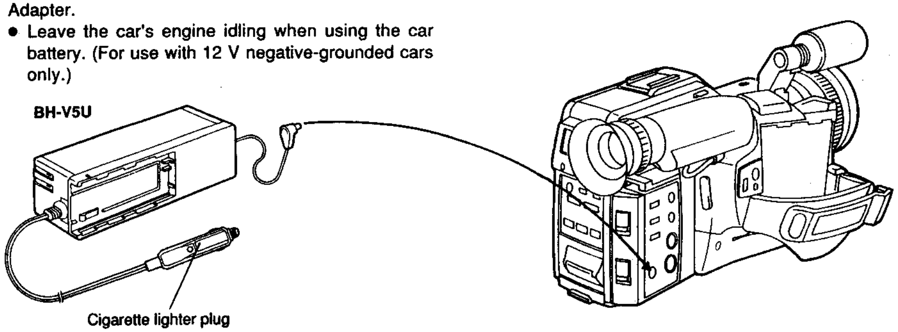
Use the provided AA-V6U AC Power Adapter/Battery Charger.



IN A CAR

Use the optional BH-V5U Car Battery Charger/Adapter.

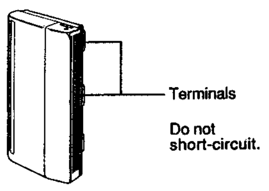
- Leave the car's engine idling when using the car battery. (For use with 12 V negative-grounded cars only.)



Note:
The optional BH-V5U Car Battery Charger/Adapter can charge the batteries from a car battery. For details refer to the instructions of the BH-V5U.

A WORD ON THE EXCLUSIVE BN-V5GU/V6GU/V7GU BATTERY PACKS

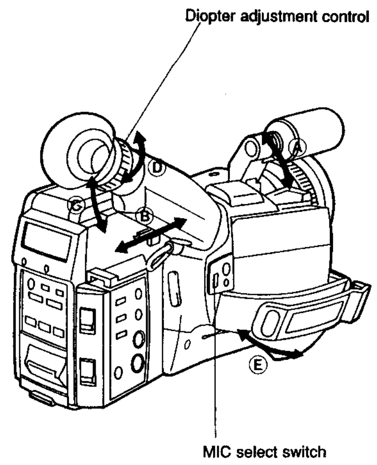
The BN-V5GU/V6GU/V7GU are nickel-cadmium batteries. Be sure to carefully read the caution attached to the battery pack.



Temperature ranges:
The recharging time is based on room temperature of 20°C.
The lower the temperature, the longer the recharging time.

For charging:	10°C to 35°C	(50°F to 95°F)
For operating:	0°C to 40°C	(32°F to 104°F)
For storing:	−10°C to 30°C	(14°F to 86°F)

BASIC PREPARATIONS



POSITIONING THE MICROPHONE

Move the built-in microphone upward until it locks (Ⓐ). (Be sure to do this before shooting, otherwise stereo recording is not possible.)
Set the MIC select switch to "STEREO".

POSITIONING THE VIEWFINDER

The viewfinder can be positioned for best viewability.
It can slide forward or back (Ⓑ) while pressing the viewfinder slide knob and can be tilted up 90° (Ⓒ).

DIOPTER ADJUSTMENT

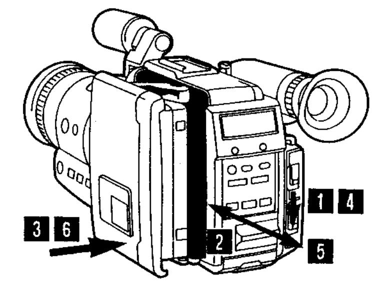
The viewfinder lens can be adjusted to suit the operator's eyesight by turning the diopter adjustment control (Ⓓ).

- Perform this adjustment in the Record-Standby mode.

ADJUSTING THE GRIP STRAP

1. Separate the Velcro strip to expand the loop (Ⓔ).
2. Pass your right hand through the loop and grasp the lens grip. Adjust the length of the strap to suit your hand size and refasten the Velcro strip.

LOADING AND UNLOADING A VIDEO CASSETTE



Notes:
- Ensure that tape is not slack inside the cassette, then load the cassette correctly. See page 38.
- Do not repeat loading and unloading of the cassette without running the tape, as this will slacken the tape, causing tape damage.
- The cassette holder can be opened even when the power is off.

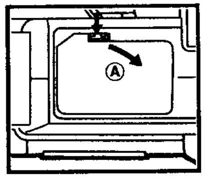
LOADING

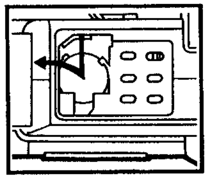
1. Open the cassette holder by pressing the EJECT button.
2. Insert the cassette with its label facing outward.
3. Close the cassette holder by pushing the specified area as shown.

UNLOADING

4. Press the EJECT button. The cassette holder will open.
5. Remove the cassette.
6. Close the cassette holder by pushing the specified area as shown.

DATE/TIME SETTING





Notes:
- Switch off the unit's power before inserting or removing a battery.
- Replace battery with Panasonic (Matsushita type) CR2025 only. Use of another battery may present risk of fire and explosion.

> **Warning on lithium battery**
> - Dispose of used battery promptly
> - Keep away from children
> - Do not disassemble and do not dispose of in fire.

LITHIUM BATTERY

The provided lithium battery powers the clock operation and date/time insertion and title memory functions.

Battery Insertion

This battery powers the date/time function.

1. Open the CLOCK battery compartment cover on the bottom of the VideoMovie (Ⓐ in the figure.)
2. Insert the provided lithium battery with the plus (+) side up.
3. Close the cover on the unit until it clicks.

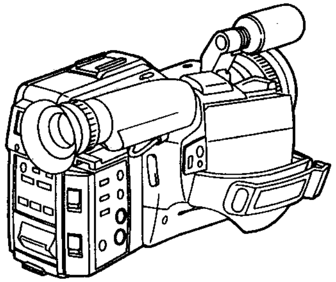
Battery replacement

The battery lasts for about one year. When the lithium battery warning (CLOCK) appears in the viewfinder, this battery needs to be replaced. Obtain a new CR2025 lithium battery and perform the following procedure.

1. Remove the battery by pressing the knob in the direction of the arrow.
2. Insert the new CR2025 with the plus (+) side up.
3. Close the cover back until it clicks.

DATE/TIME SETTING

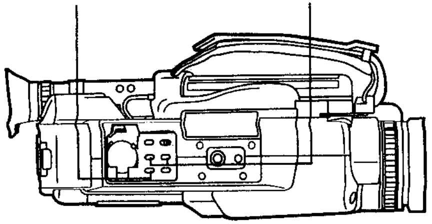
Before adjusting the date and time for the first time or after replacing the batteries, "JAN.1.00" blinks in the viewfinder, indicating the clock needs to be set.



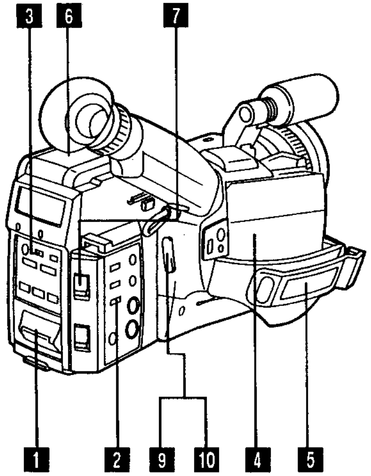
1. Switch the unit's power on, "JAN.1.00" will blink in the viewfinder.
2. Press the DATE/TIME SELECT button—the year blinks.
3. Press the DATE/TIME SET button to choose the correct number.
4. Press the DATE/TIME SELECT button to select the next item to change, with the item selected changing in the following sequence:

→ Year → Month → Day → Hour → Minute
Finish Adjustment ←

5. Repeat steps 2 and 3 to set all items. After the minute setting has been performed, press the DATE/TIME SELECT button, and items will cease blinking, and the clock will resume normal function. For the auto date record mode, the auto date record reserve indicator will appear.

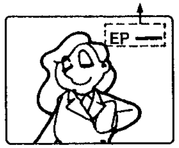
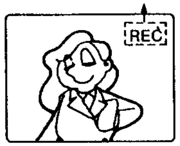
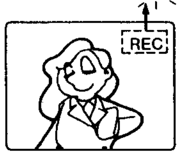


RECORDING OPERATIONS



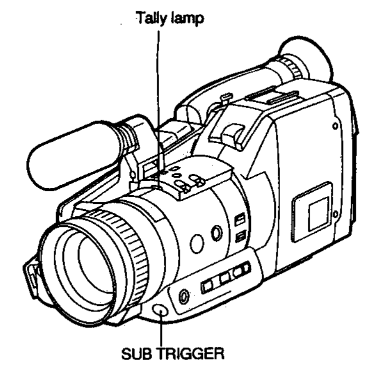
1. Set the control panel cover to REC.
2. Set the S-VHS mode select switch as required.
   Note:
   - Only S-VHS tapes can be used to make S-VHS recordings.
3. Set the SP/EP recording mode select switch as required.
4. Supply power. (Battery pack or AC power adapter or car battery charger. See pages 7 and 8.)
5. Adjusting the grip strap. See page 9.
6. Insert a video cassette correctly. See page 9.
7. Slide the POWER switch to turn power on. The unit enters the Record-Standby mode. (The aimed-at scene will appear on the viewfinder screen.)
8. Determine the composition by referring to the viewfinder image.
9. Press the Recording Start/Stop button. The recording mode indication will appear and the recording starts.
   - During recording, the tally lamp lights continuously.
10. To stop recording temporarily, press the Recording Start/Stop button once again.
    - To restart recording, press the Recording Start/Stop button.

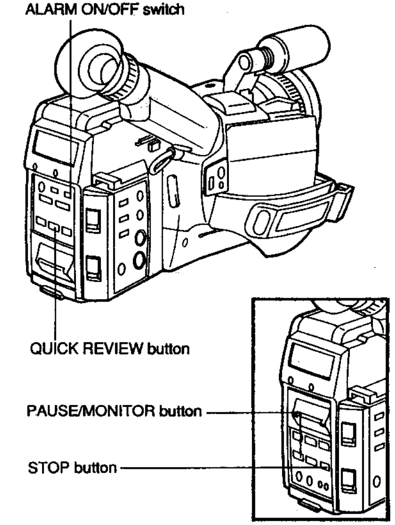
Viewfinder Indications

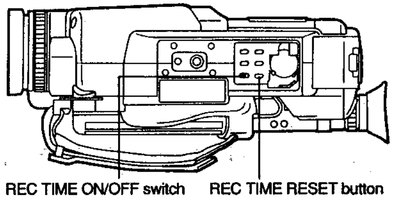
Record-Standby mode	Recording mode	Tape-end warning
"-" or "EP -" 	"REC" or "EP REC" 	Blinking → "REC" or "EP REC" 

> - The tape-end warning indication will start blinking about 3 minutes before the end of the tape with a 20-min. tape (ST-C20 or TC-20). With a 30-min. tape (ST-C30 or TC-30), the blinking starts about 5 minutes before the end of the tape in the SP mode, and about 7 minutes in the EP mode.
> - If a tape reaches its end during recording, the Stop mode is engaged automatically.

> **Notes:**
> - To end recording, slide the POWER switch to off.
> - For a longer pause, slide the POWER switch to off to save power.
> - If the Record-Standby mode continues for longer than about 5 minutes, the unit switches itself off automatically. To restart recording, turn the power on and press the Recording Start/Stop button. This makes clean assembled recordings possible even after a long pause.
> - Repeating steps 9 and 10 produces assemble recordings.







REHEARSAL

If you wish to rehearse shooting angles, compose scenes, etc., without actually recording on the tape, press the PAUSE/MONITOR button.
The aimed-at scene will appear on the viewfinder screen.
STOP button:

- Rehearsal is possible whether a cassette is loaded or not.
- With a cassette loaded, rehearsal is not possible during rewind or fast forward.
- The power save circuit does not function during rehearsal. (For power save function, see page 14.)

SUB TRIGGER

When you shoot scenes from a low angle, use the Second Recording Start/Stop button (SUB TRIGGER) for better viewability and securer positioning of the camera.

TRIGGER ALARM

When the ALARM ON/OFF switch is set to ON, an electronic alarm beeps when the Recording Start/Stop button is pressed to begin recording.
The electronic alarm beeps twice when the Recording Start/Stop button is pressed for record pause. This alarm helps prevent recording errors.

TALLY LAMP

Lights to show that the recording is in progress.

QUICK REVIEW

If you want to review the end of the last recording for confirmation, press the QUICK REVIEW button from the Record-Standby mode; the tape will be rewound for about 2 seconds of program time and played back automatically for this section, after which it will stop in the Record-Standby mode for the next shot.

Note:

- Distortion might occur when playback starts. This is normal.

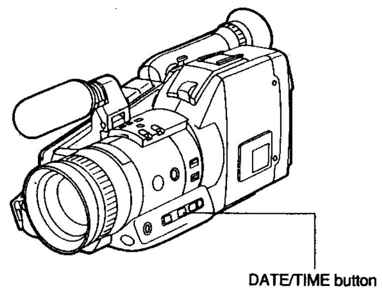
ELAPSED TIME DISPLAY

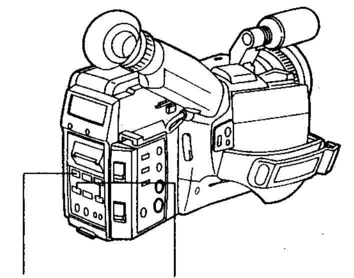
The accumulated recording time (elapsed time) can be displayed on the viewfinder.

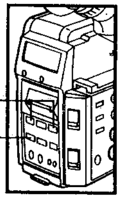
1. Set the REC TIME ON/OFF switch to ON. The recording time is displayed on the viewfinder screen.
2. If you wish to reset it to "0:00:00", press the REC TIME RESET button.

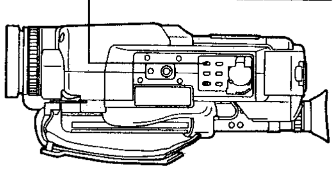
Notes:

- When you wish to disengage the Elapsed Time Display mode, set the REC TIME ON/OFF switch to OFF.
- Sliding the control panel cover to "PLAY", or opening the cassette holder also resets the display to "0:00:00".









ON-SCREEN DISPLAY

The viewfinder indications can also be displayed on the screen of a monitor connected to the GR-S505U.

- Connect the GR-S505U to a video monitor. Press the DATE/TIME MODE button to select the On-Screen Display mode.
- The on-screen display on the connected monitor is available in Rehearsal or Record-Pause mode.

INDEX CODE MARKING

The VHS Index Search System (VISS) gives you automatic access to any point you select on a recording. Only the marking aspect of the Index Search System is included in this unit. It allows index codes to be placed on recorded tape for convenient dubbing or editing on VCRs with an Index Search function.

- Press the VISS button once to put an index code onto the tape. The INDEX mode indication blinks in the viewfinder during the marking process.
- When the "INDEX" indication appears in the viewfinder, no VideoMovie functions can be executed.
- If the VISS button has been pressed in the Record-Pause mode, an index code is put at the point where the Recording Start/Stop button is pressed.

DATE/TIME RECORDING

The date, time, or date and time can be displayed and recorded according to the selected mode. Press the DATE/TIME MODE button to cycle through the modes in the following order:

→ Date/time display → Date display → Time display →
← On-screen display ← Auto date record reverse ←

Auto date-record function

This function allows the date (month, day and year) to be automatically recorded for about 5 seconds following the first operation of the Recording Start/Stop button:
= after the control panel cover is set to "REC",
= after a cassette is loaded, or
= after "AUTO DATE" mode is selected by the DATE/TIME MODE button.

- The viewfinder indication shows the date during initial 5 seconds, then changes to "AUTO DATE".

Date/time recording indications

Date/time display	Date display	Time display
DEC.31.90 AM 12:30	DEC. 31. 90	AM12:30

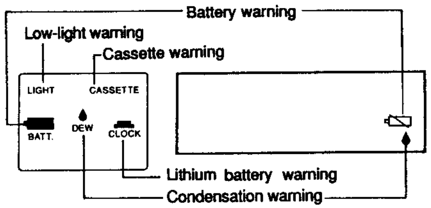
Auto date record	
AUTO DATE	DEC. 31. 90
Auto date record mode	Auto date record executed

RETAKE

After reviewing a recorded segment, you may decide to re-record it immediately. The Retake function is convenient for this.

1. Make sure the VideoMovie is in the Record-Standby mode. (If not, engage the mode.)
2. Press either RETAKE button to reach the point where you wish a new recording to start. When the RETAKE button is released, the camera will enter the Record-Standby mode again.
3. Press the Recording Start/Stop button to start recording.
   - Noise may appear during Retake. This is normal.

WARNINGS



Viewfinder **LCD Panel**

Battery warning

- When the battery power is coming to an end, a battery warning indication appears in both the viewfinder and the LCD. Replace the battery pack with a fully charged one.
- After these indications appear, the power turns off automatically. In this state, however, pressing the EJECT button turns the power on and ejects the cassette.

Low-light warning

- If the blinking "LIGHT" indicator appears on the viewfinder screen, the amount of light is insufficient. Increase the lighting.

Lithium battery warning

- Blinks when the lithium battery is not in place or exhausted. In this condition, no date/time function is available.

Condensation warning

- Appears when the excessive moisture condensation occurs inside the unit.

Cassette warning

- Blinks to warn that no cassette or a cassette without safety tab is inserted.

ASSEMBLE RECORDING TECHNIQUES

[1] To replace the battery pack during recording

1. If the battery warning appears in the viewfinder or the LCD while recording, stop recording by setting the POWER switch to OFF.
2. Replace the battery pack with a charged one.
3. Set the POWER switch to ON.
   - The unit will be in the Record-Standby mode.
4. Press the Recording Start/Stop button to start recording.

[2] To record onto a partially recorded tape

1. Play back the tape to a point where you wish a new recording to start.
   - Use the SHUTTLE SEARCH button for faster location.
2. Press the PAUSE/MONITOR button at the located point.
   - The unit will enter the Still mode.
3. Slide the control panel cover downward.
4. Press the Recording Start/Stop button to start recording.

POWER SAVE AND TAPE PROTECTION CIRCUIT

- To save battery power, the VideoMovie switches itself off automatically in the following situations:
  (1) When left for longer than 5 minutes in the Stop mode.
  (2) When left for longer than 5 minutes in the Record-Standby (Record-Pause) mode.
- To protect the tape, the VideoMovie (regardless of whether battery-operated or AC-powered) releases tape tension slightly and switches itself off automatically if left for longer than 5 minutes in the Record-Standby (Record-Pause) mode.
- For the same reason, the VideoMovie switches itself off if left for longer than 5 minutes in the Still (Play-Pause) mode.

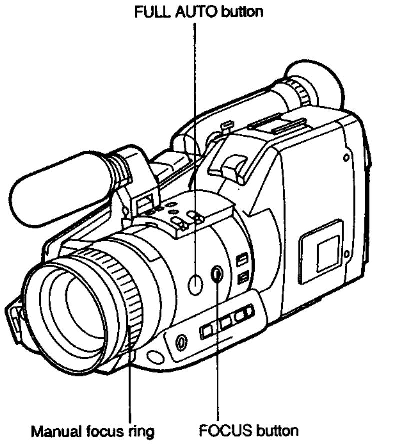
5 minutes

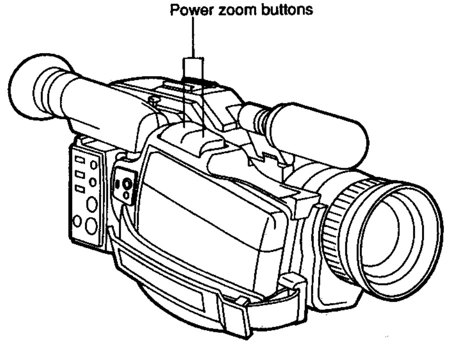
STOP → POWER OFF

RECORD PAUSE → POWER OFF

PLAY PAUSE (STILL) → POWER OFF

ADVANCED VIDEOGRAPHY TECHNIQUES





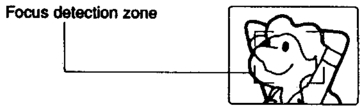
Note:

- If the lens is smeared with stains or blurred with condensation, accurate focusing is not possible. Keep them clean. If they become dirty, wipe with a piece of soft cloth. When condensation occurs, dry them by wiping with a soft cloth or wait for conditions in which they become dry.

[1] FOCUSING

Auto-focus

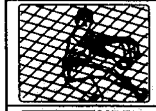
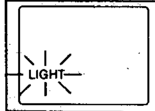
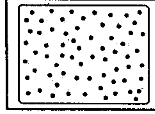
- A small area around the center of the picture, which varies depending on the zoom and focus conditions, is used to detect focus. (no actual indication provided on the screen.)



CAUTION

- When not in use, do not leave the VideoMovie in the Auto Focus mode with power on; otherwise light entering the lens will operate the auto-focus mechanism, consuming power.

- Correct focus may not be obtained in the following situations. In such case manual focusing should be performed to obtain proper focus.

	Two subjects at different distances overlap in the same scene.
	Low illumination.
	Minute patterns or identical patterns that are regularly repeated.

Manual focus

For manual focus operation, proceed as follows:

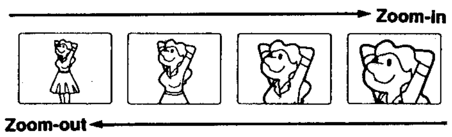
1. Press the FOCUS button to release the Auto Focus mode.
2. Zoom in on a subject by pressing the "T" button.
3. Focus onto it by turning the manual focus ring.
4. Determine the composition by pressing the "W" button.

Notes:

- To release the Manual Focus mode (to engage the Auto Focus mode), press the FOCUS button or FULL AUTO button.
- When you use the Manual Focus mode, be sure to focus the lens in the maximum telephoto position. If you focus in on a certain subject in the wide-angle position, sharply-focused images cannot be obtained when zoomed up because the depth- of-field is reduced at longer focal lengths.

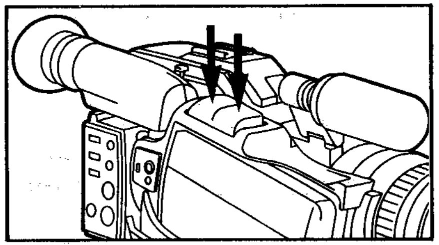
2 ZOOMING

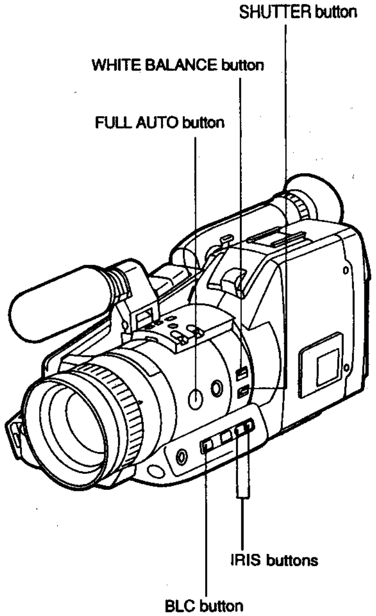
When the focal length of the lens is varied by pressing the power zoom buttons, the image appears to come nearer to or retreat from the viewer.



Procedure

- Press "T" for zooming in and "W" for zooming out.
- Two zooming speeds are available. For slow-speed zooming, press lightly. For regular-speed zooming, press firmly.





3 MACRO SHOT

The GR-S505U's Full Range AF system can offer continuous shooting ability from close-up to infinity.

Procedure for Macro shooting

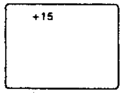
1. Press the "W" power zoom button until the lens zooms out completely.
2. Position the subject in auto-focus detection zone.

- For best results, increase illumination when shooting in the Macro mode.

4 IRIS CONTROL

Iris is automatically adjusted in the Full Auto mode. However, you can adjust it manually from its current setting.

1. Press either IRIS button ("+" or "–"). The iris indication appears on the viewfinder screen.
2. Select the required iris level.
   IRIS "+" button: Each time it is pressed, the aperture opens one step, up to +15 steps.
   IRIS "–" button: Each time it is pressed, the aperture closes one step, up to –15 steps.



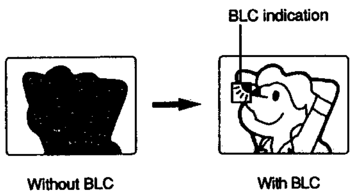
Viewfinder

- The viewfinder indication shows the selected setting, indicating only the over- or underexposure status.
- When you simply wish to compensate for strong backlightning, see the "Backlight Compensation" section on the next page.
- To restore the standard "0" iris setting, press the "+" and "–" buttons simultaneously.

5 BACKLIGHT COMPENSATION

When excessive lighting is located in back of the subject, correct exposure may not be obtainable.
To compensate for this, use BLC.

- Press the BLC button. The BLC indication appears on the viewfinder screen. While it is being pressed, the iris is 1–2 f-stops wider than that adjusted automatically.
  Releasing the button within 1.5 seconds locks the BLC condition. To cancel, press it again.



6 WHITE BALANCE ADJUSTMENT

The GR-S505U's Automatic Color Tracking system senses the color temperature of the ambient lighting for automatic white balance adjustment.
However, precise color temperature adjustment is not possible under the following conditions.

- The light falling on the object being shot and the light around the camera are of different color temperatures.
- Either the object or the camera is in an area covered by a shadow.

In these cases, use the VideoMovie's built-in filters for white balance adjustment.

- Press the WHITE BALANCE button so that the required symbol appears on the viewfinder and on the LCD.
  - ✺ : when the subject is illuminated by a halogen or tungsten lamp.
  - ⚌ : when the subject is illuminated by a fluorescent lamp.
  - ☀ : when you shoot in the daytime outdoors.
- To switch to the automatic adjustment, press the WHITE BALANCE button until the indication disappears, or press the FULL AUTO button.

7 MULTIPLE-SPEED ELECTRONIC SHUTTER

The GR-S505U is equipped with a selectable high-speed shutter that allows better recording of quick movements for sharp, clear stills or slow-motion playback.
Select it when taping fast-action shots that you will want to play back later on a VCR equipped with the Still or Slow-motion mode.

1 Press the SHUTTER button to switch to the desired electronic shutter speed. This can be done while Recording or in any other mode. It continues at the selected speed until switched to another speed.

2 Select the shutter speed among 1/10000, 1/4000, 1/2000, 1/1000,1/500, 1/250, 1/125, 1/100, 1/60 second and Auto mode by pressing the shutter speed changes in the following order:

Auto → 1/60 → 1/100 → 1/125 → 1/500
↑ ↓
1/10000 ← 1/4000 ← 1/2000 ← 1/1000

- In the Auto mode, usually the shutter speed is set to 1/60 sec., but changes to 1/100 sec. whenever flickering caused by light sources such as fluorescent lamps is detected.

3 When finished recording the fast-action scene, switch back to the standard shutter speed by pressing the SHUTTER button until the SHUTTER indicator in the viewfinder disappears.

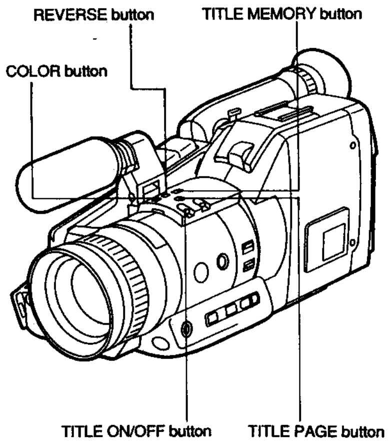
- When selected, the High-Speed Shutter mode is indicated on the viewfinder screen.

Notes:

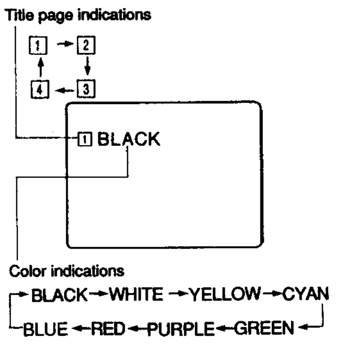
- The High-Speed Shutter mode requires slightly more subject illumination than the Standard Shutter mode. Therefore, the low-light warning may blink in the viewfinder. If so, switch to the Auto mode.
- Picture color may be adversely affected in the High-Speed Shutter mode when the subject is lit by alternating discharge-type light sources such as fluorescent or mercury-vapor lights.
- When playing back a section recorded in the High-Speed Shutter mode, movement of subjects in the picture may not be smooth. This is not due to any defect of the unit.
- Pressing the FULL AUTO button also restores the shutter speed to the standard level.

8 DIGITAL SUPERIMPOSE

The GR-S505U's Digital Superimpose function allows 4 titles to be superimposed on a recording in a choice of 8 colors and either positive or negative (reversed) style for more creative video opportunity.



Viewfinder Indications



Notes:

- The page selection can be changed when the TITLE ON/OFF button is ON.
- When a page of memory contains nothing, it is "empty", and a pattern of stripes will appear in the viewfinder.
- When the power is turned off or the VideoMovie is put into the Stop mode, the Page mode returns to the page 1 position.

1 STORING TITLES

1 Put the VideoMovie into the Record-Pause or Rehearsal mode.

- When the " CLOCK " indication (lithium battery warning) appears in the viewfinder, titles cannot be stored. Insert the lithium battery, or replace the inserted one with a new one according to the instructions on page 10.

2 Press the TITLE ON/OFF button.

3 Use the TITLE PAGE button to select the page of memory in which you want your title to be stored. The page number will appear on the viewfinder screen.

4 Aim the lens at your title in as well-lit a location as possible. You may also use the provided Title Easel for this purpose. Shoot in the Macro mode when using the Title Easel.

- If, at this point, the stripes or an old title appearing in the viewfinder prove bothersome, press the TITLE ON/OFF button to turn it off.
- When storing a title, the scene visible in the viewfinder may differ slightly from that which will be recorded on the tape.

5 Press the TITLE MEMORY button for about 1 second to store the title.

- When a title is stored poorly, check to see that the lighting is adequate and that the title is drawn with bold strokes, then shoot the title again.
- Every time the TITLE MEMORY button is pressed, the previously recorded title stored in that page of memory will be erased, and replaced with the new title.

6 Press the COLOR button to select the color in which you want your title to appear.

7 Press the REVERSE button to choose negative or positive style. To store additional titles, in digital memory pages 2–3, repeat steps 3–7 above.

- The TITLE MEMORY button works in both the Record-Pause and Rehearsal modes; care should be exercised not to press TITLE MEMORY accidently as this will erase stored titles.

Creating titles

Make note of the following guidelines to assure best results.

1. Create titles using dark colors on light backgrounds—black writing on white paper, for example.
2. Letters should be drawn with broad strokes.

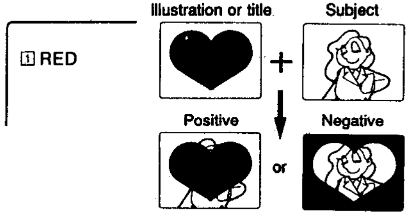
2 SUPERIMPOSING TITLES

① **Making a title at the beginning of a recording**

1 Put the VideoMovie into the Record-Pause mode.

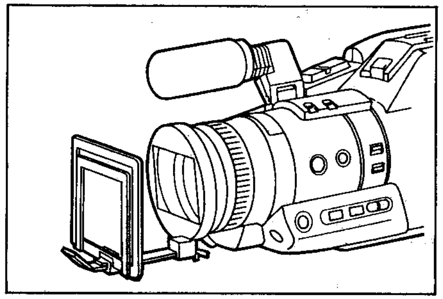
2 Press the TITLE ON/OFF button to display your title on the viewfinder screen.

3 Press the TITLE PAGE button until the title you wish to use is displayed. The pages will cycle from 1 to 4. Confirm the page, the color, and the positive/negative style. Color choice and positive/negative style can be changed at this point. Press the COLOR button to select a different color, and the REVERSE button to choose positive/negative style.


1 RED
Illustration or title
Subject
+
Positive
Negative
or

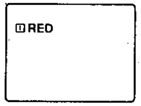
4 Press the unit's Recording Start/Stop button to begin recording. The title will now be mixed with what you are recording.
Press the TITLE ON/OFF button when you wish to end the titled portion of your recording.

Provided title cards can be recorded by inserting it in the provided Title Easel.



② **Inserting a title in the middle of a recording**

1 Confirm the page, color, and positive/negative style of your title.
Press the TITLE ON/OFF button to turn it off.



2 Shoot your live scene by pressing the Recording Start/Stop button.
Press the TITLE ON/OFF (or TITLE FADER) button when you wish to insert your title. It will be inserted into your ongoing recording at exactly that point.

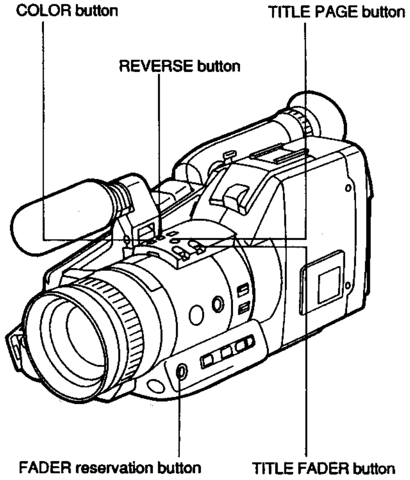
3 Press the TITLE ON/OFF (or TITLE FADER) button again to stop inserting your title with the action you are recording.

Notes:

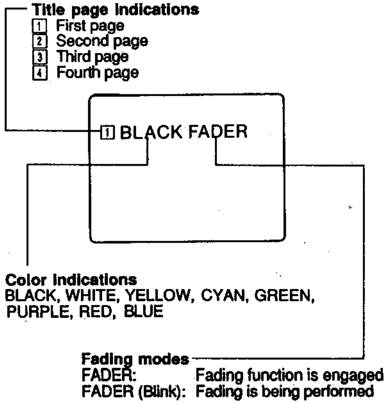
- Color choice, page number, and positive/negative selections can be changed when the title is displayed in the viewfinder.
- The "Color" and "Page number" indications displayed in the viewfinder will not be recorded on the tape.
- When an "empty" page is called from memory, a pattern of stripes will appear in the viewfinder.
- When the lithium battery for the unit's clock is exhausted, stored titles may be lost. For best results, replace the lithium battery before its one year required replacement date. When the lithium battery warning appears in the viewfinder, as long as power is still supplied to the unit by the main battery pack, or from an AC source (even if the unit's power switch is off), the digital memory will be retained, however, the lithium battery should be replaced at this time.
- With title off, press the COLOR button or PAGE button to check the page number and color for about 3 seconds. The "Color" and "Page number" can be changed.

9 COLOR FADER

The GR-S505U incorporates a color fader which allows smooth video/audio fade-in and fade-out with a blank screen, with a choice of 8 background colors. The fader is simultaneously activated with the Recording Start/Stop button operation.


COLOR button
TITLE PAGE button
REVERSE button
FADER reservation button
TITLE FADER button

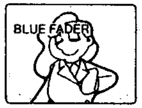
Viewfinder Indications


Title page indications
1 First page
2 Second page
3 Third page
4 Fourth page
1 BLACK FADER
Color indications
BLACK, WHITE, YELLOW, CYAN, GREEN, PURPLE, RED, BLUE
Fading modes
FADER: Fading function is engaged
FADER (Blink): Fading is being performed

1 BASIC FADE-IN/OUT OPERATION

① **Fade-in**

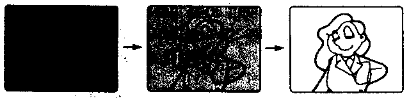
1 Aim the VideoMovie to the subject in the Record-Standby mode, then press the FADER button to engage the Fade-Standby mode. The previously selected color and "FADER" appear on the viewfinder screen.



2 Press the COLOR button to select the screen color from which fading starts. Each time it is pressed, the color changes in the following order and corresponding indication appears on the viewfinder screen.

BLACK → WHITE → YELLOW → CYAN
BLUE ← RED ← PURPLE ← GREEN

3 Press the Recording Start/Stop button. The screen immediately becomes blank with the selected color and recording begins. Fade-in starts at the moment the Recording Start/Stop button released. "BLUE FADER" in the viewfinder blinks until the fade-in is completed. If the button is not released, the screen will remain blank and be recorded (with no audio) as long as the button is kept pressed.



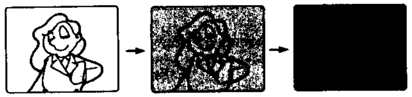
② **Fade-out**

1 Start shooting as usual.

2 Press the FADER button to engage the Fade-Standby mode. The previously selected color and "FADER" appear on the viewfinder screen.

3 Press the COLOR button to select the screen color to which fading ends.

4. Press the Recording Start/Stop button. The viewfinder indications start blinking. Fade-out starts and will be completed in about 5 seconds. When completed, the VideoMovie enters in the Record-Standby mode automatically. At this time, if the button is not released, the screen will remain blank and be recorded as long as the button is kept pressed.



Note:

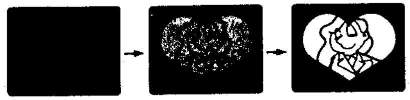
- Viewfinder indications (selected color and "FADER") are not recorded.

2 TITLE FADE-IN/OUT OPERATION

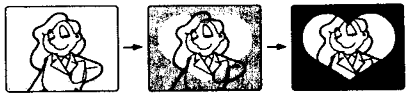
The Color Fader can be used in combination with the Digital Superimpose function. Fading of "scene with title" (at the beginning or end of a recording) and fading of "title only" (in the middle of a recording) are both possible.

① Fade-in

1. Engage the Record-Standby mode.
2. Press the TITLE ON/OFF button to display the already-stored title on the viewfinder screen.
3. Press the TITLE PAGE, COLOR and REVERSE buttons as required to make settings of your preference.
4. (A) When fading in a title simultaneously with the Recording Start/Stop button operation (title fade-in at the beginning of a recording):
   Press the FADER button to engage the Fade-Standby mode. Then press the Recording Start/Stop button. The color blank screen appears and the button is released, fade-in of both the screen and title begins.



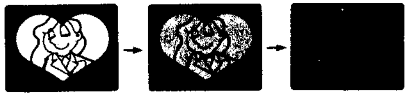
(B) When fading in a title in the middle of a recording:
Press the TITLE ON/OFF button again to clear the title, then press the Recording Start/Stop button to start recording.
Press the TITLE FADER button when you wish to insert the title. Fade-in of the title begins.



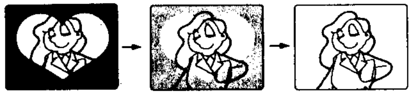
5. Press the TITLE ON/OFF button to clear the title.

② Fade-out

1. Follow steps 1 to 3 of "fade-in" on the left. Then start recording.
2. (A) When fading out a title simultaneously with the Recording Start/Stop button operation (title fade-out together with the scene at the end of a recording):
   Press the FADER button to engage the Fade-Standby mode. Fade-out of both the scene and title begins and will be completed in about 5 seconds. When completed, the VideoMovie enters the Record-Standby mode automatically. If the Recording Start/Stop button is not released, the screen will remain blank and be recorded as long as the button is kept pressed.



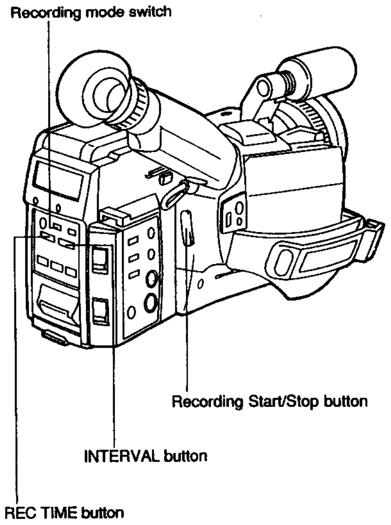
(B) When fading out a title in the middle of a recording (with recording still continuing):
Press the TITLE FADER button when you wish to fade out the title. Fade-out of the title begins.



Notes:

- With title off, press the COLOR button or PAGE button to check the page number and color for about 3 seconds. The "Color" and "Page number" can be changed.
- The Title Fader cannot be used when Fade-in/-out is engaged.
- The same color is used for both the Color Fader and title when the TITLE ON/OFF button is ON.

SPECIAL RECORDING FUNCTIONS



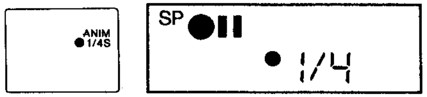
Notes:

- Keep the VideoMovie steady in one position when filming the series of shots for best results. Mounting the VideoMovie on a tripod is recommended.
- Set the REC TIME ON/OFF button to OFF when performing the Animation on Time-Lapse shooting.
- Before recording in the Animation mode at the very beginning of a tape, set the VideoMovie to the Recording mode for about 5 seconds, so that the tape runs smoothly. Using the Fade-in function at this point is a good way to begin an animated program.
- Fade-in/out is not possible while the Animation or Time-Lapse shooting.

1 ANIMATION

The Animation function produces the illusion of movement in otherwise stationary scenes or objects. This technique is accomplished by shooting a series of slightly different pictures of the same scene or slightly different poses of the same object for a brief period of time.

1. Set the Recording mode switch to "SP".
2. Put the VideoMovie in the Record-Pause mode.
3. Press the REC TIME button.
   - The following information will appear in the viewfinder and LCD panel with an initial setting for 1/4(S) to show the camera is set to record for about 1/4 second.



Viewfinder LCD panel

4. Press the REC TIME button again to select the desired recording time. The following sequence of time setting is displayed with each press of the button:

   1/4S (1/4) → 1/2S (1/2) → 1S (1) → (regular recording mode) →

5. Press the Recording Start/Stop button after focusing the VideoMovie on the subject.
   - Recording stops automatically in the Record-Pause mode after the selected period of time.
6. Repeat steps 4-5 for the required number of pictures.
7. Playback the recorded series to check if results were satisfactory.

To release the Animation mode

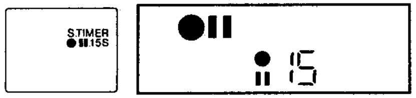
Press the REC TIME button until the "ANIM" indicator in the viewfinder disappears, or slide the control panel cover to "PLAY".

- The Animation mode can only be engaged from the Record-Pause mode.

2 SELF-TIMER

The Self-Timer function allows you to set the amount of time delay before recording starts after the Recording Start/Stop button has been pressed. If the VideoMovie has been secured, the operator can enter the picture before actual recording begins.

1. Put the VideoMovie into the Record-Pause mode.
2. Press the INTERVAL button.
    - The following information will appear in the viewfinder and LCD panel with an initial setting for 15(S) to show the VideoMovie is set for a 15-second delay before recording begins.



Viewfinder **LCD panel**

3. Select the desired interval time by pressing the INTERVAL button repeatedly. The following sequence of time setting is displayed with each press of the button:

15S → 30S → 1M (60) → 5M (300)
(regular recording mode) ←

4. Press the Recording Start/Stop button. When the selected time has elapsed, recording begins automatically.
    - When performing Self-Timer shooting, the tally lamp will start blinking approximately 10 seconds before the actual recording begins. The when recording starts, the lamp lights normally to indicate recording is in progress.

To release the Self-Timer mode

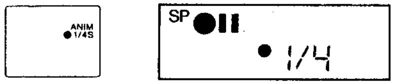
When "–" is not blinking:
Press the INTERVAL button continuously until the Self-Timer indication goes off.
When "–" is blinking:
Press the Recording Start/Stop button to stop the blinking, then press the INTERVAL button continuously until the Self-Timer indication goes off.

- Turning the power off and on once engages the regular Record-Pause mode.

3 TIME-LAPSE

The Time-Lapse function allows automatic sequential on/off recording at preset time spans. With the VideoMovie continuously focused on a specific scene or object, the resulting recording will show subtle changes (such as shifts in cloud formations, plant growth etc.) over an extended period of time.

1. Set the Recording mode switch to "SP".
2. Put the VideoMovie into the Record-Pause mode.
3. Press the REC TIME button.
    - The following information will appear in the viewfinder and LCD panel with an initial setting for 1/4(S) to show the VideoMovie is set to record for 1/4 second.

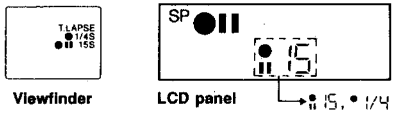


Viewfinder **LCD panel**

- Select the desired recording time by pressing the REC TIME button repeatedly. The following sequence of time settings is displayed with each press the button:

1/4S → 1/2S → 1S → (regular recording mode)

4. Press the INTERVAL button.
    - The following information will appear in the viewfinder with an initial setting for 15 seconds.



Viewfinder **LCD panel**

alternately appearing

5. Select the desired interval time by pressing INTERVAL button repeatedly. The following sequence of time settings is displayed with each press of the button:

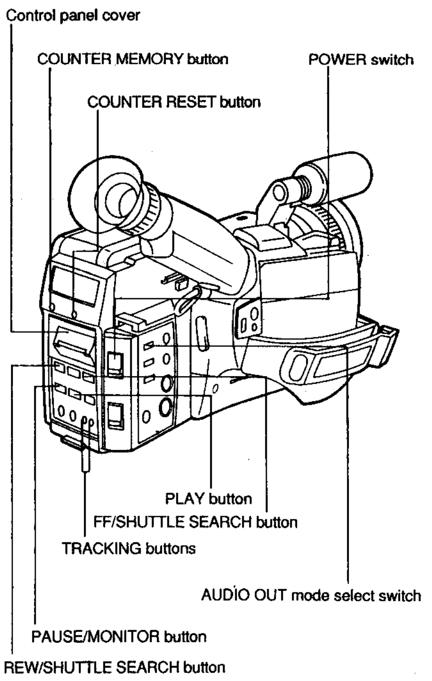
15S → 30S → 1M (60) → 5M (300)
(regular recording mode) ←

6. Press the Recording Start/Stop button to start the Time-Lapse recording. The selected recording time and interval will alternate automatically.
    - The tally lamp functions in the same way as in Self-Timer shooting.

To release the Time-Lapse mode

When "–" is not blinking:
Press the INTERVAL and REC TIME buttons continuously until the Time-Lapse indication goes off.
When "–" is blinking:
Press the Recording Start/Stop button to stop the blinking, then press the INTERVAL and REC TIME buttons continuously until the Time-Lapse indication goes off.

PLAYBACK



When monitoring audio during playback

Set the AUDIO OUT mode select switch according to the audio track you wish to listen to. (Also effective when monitoring with the stereo earphones connected to the PHONES jack.)

NORM: To listen to the sound recorded on the longitudinal (normal) audio track.

MIX: To listen to the sound recorded on both Hi-Fi and longitudinal audio tracks (mixed audio).

Hi-Fi: To listen to the sound recorded on the Hi-Fi audio track.

- When playing back a tape containing the same soundtrack on both hi-fi and normal audio tracks, a slight time lag is sensed between the two sound tracks, probably with some distortion, in the MIX position. Therefore, in such a case, use the NORM or Hi-Fi position.
- The AUDIO OUT mode select switch is effective in the Rehearsal and Record-Pause mode as well the Recording mode.

The GR-S505U permits playback of recorded "S-VHS-C" and "VHS-C" video cassettes.
For connections refer to pages 27 and 28.

Preparations

- With a television equipped with audio/video (or S-VIDEO) input connectors, engage the Video (or AV) mode of the television.
- With a regular television, set the antenna select switch of the RF-V3U RF unit to VIDEO and the television's channel selector to your video channel (specified AV channel).

1. Connect a power supply unit. (Battery or AC operation: see pages 7 and 8.)
2. Slide the control panel cover to "PLAY".
3. Slide the POWER switch to turn power on.
4. Insert a pre-recorded S-VHS-C or VHS-C cassette.
    - Ensure that tape is not slack inside the cassette, then load the cassette correctly. See page 38.
5. Press PLAY button. Playback will start.

STILL PLAYBACK

Press the PAUSE/MONITOR button during playback. The picture will stop on the screen.

- After about 5 minutes of still playback, the VideoMovie turns the power off automatically for tape protection.

SHUTTLE SEARCH

1. Fast-speed playback in the forward direction
Press the FF/SHUTTLE SEARCH button in the Play mode. Playback will be speeded up to 3 times normal speed in the SP mode, 7 times in the EP mode.
2. Fast-speed reverse playback
Press the REW/SHUTTLE SEARCH button in the play mode. The tape will be played back in the reverse direction at 3 times normal speed in the SP mode, 7 times in the EP mode.

Notes:

- For brief fast-speed searching, keep the SHUTTLE SEARCH button pressed for more than 2 seconds; when you release the button, the Search mode will be cancelled.
- Noise bars will appear and pictures may become monochrome while in these modes. This is not due to any defect of the unit.

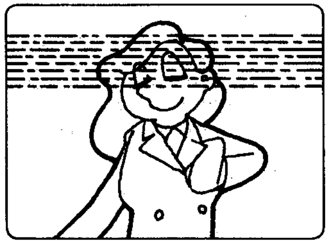
DIGITAL AV TRACKING

Digital AV tracking adjustment is performed automatically to obtain optimum pictures during playback. Adjust the tracking manually when noise bars appear on the screen or when the Hi-Fi stereo sound breaks up.

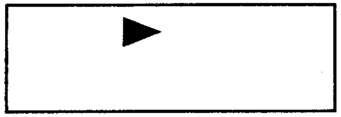
Manual tracking

Manual tracking might be more effective, depending on video cassette being used.

1. Press the both TRACKING (–/+) buttons simultaneously for switching to cancel the automatic mode and enter the Manual Tracking mode.
2. Adjust to the best picture possible by pressing either TRACKING (–/+) button.
   - Press both buttons simultaneously again restores the (automatic) Digital AV Tracking mode.
   - In the Manual Tracking mode, if once the power is turned off and reapplied later, or if the cassette is ejected and reloaded later, the (automatic) Digital Tracking mode is restored automatically the next time a cassette is played back.



LCD panel



- Slow blinking — Manual Tracking
- Fast blinking — Auto Tracking continues
- Steady light — Auto Tracking completed

Note:
- For tapes recorded on another deck, tracking adjustment might not be effective.

COUNTER MEMORY FUNCTION

The GR-S505U incorporates a counter memory function which facilitates locating a specific tape segment.

1. Press the RESET button to reset the counter to "0".
2. Press the MEMORY button. The "M" mark will appear.
3. After recording or playback, press the STOP button, then the REW button. The tape will automatically stop at the counter reading of around "0".
4. Press the PLAY button to start playback.

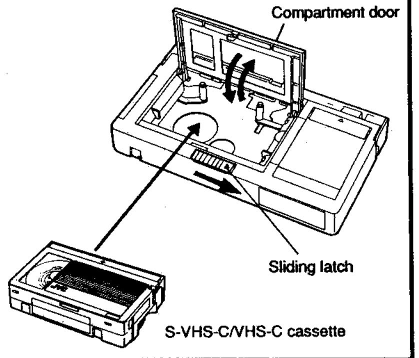
Notes:
- The counter memory function is effective in the Fast Forward mode as well.
- *To cancel the memory function, press the MEMORY button.*
- When the power supply unit is disconnected, all indications on the LCD disappear and the counter *memory function is instantly cancelled.*

USING THE CASSETTE ADAPTER

By using the provided Cassette Adapter, an S-VHS-C or a VHS-C video cassette recorded with this VideoMovie can be played back with any deck-type S-VHS video recorder (deck-type VHS video recorders can play back only cassettes recorded in VHS). Also, either an S-VHS-C or a VHS-C video cassette installed in the cassette adapter is fully compatible for both recording and playback on any deck-type S-VHS or VHS video recorder.

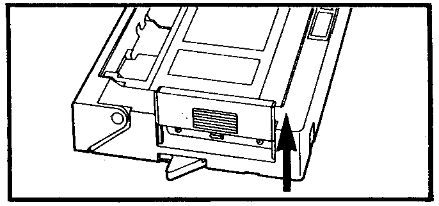
Note:
- Only compact video cassette tapes marked S-VHS-C or VHS-C can be used with the Cassette Adapter.

- **C-P6U Cassette Adapter**
  Being battery-operated, the C-P6U performs tape loading and unloading automatically.



Note:
- During special-effects playback (slow motion, still frame, etc.) the picture may vibrate or noise bars may appear on the screen.

Inserting the battery into the cassette adapter
1. Remove the battery cover by sliding it up.
2. Install one "AA" battery and reattach the cover.

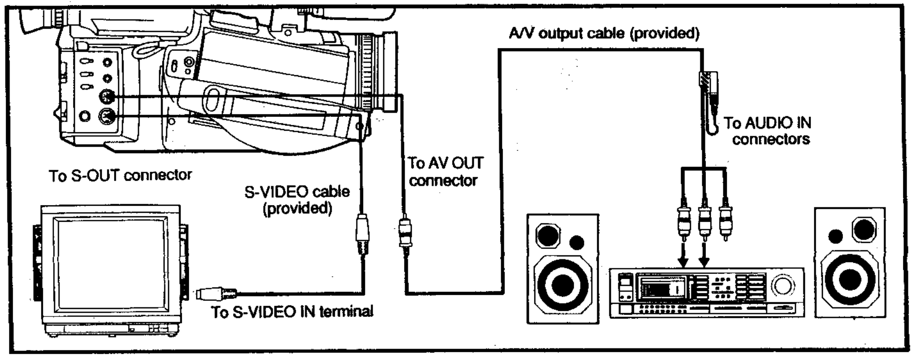


CONNECTIONS TO A TELEVISION FOR PLAYBACK

1 Connection to a television equipped with an S-VIDEO input connector

In this situation, use the S-VIDEO cable and the A/V output cable (both provided).

- Connect the provided A/V output cable to an external audio system, or the TV's audio input connectors. (If your TV set is not equipped with stereo capability, connect to its L-channel audio input.)



Procedure

- Connect the [S] OUT connector of the GR-S505U to the S-VIDEO IN terminal if the S-VIDEO equipped television.
- Connect the AV OUT connector of the GR-S505U either to the television's AUDIO IN connectors or the AUX IN or TAPE MONITOR terminals of an amplifier.

Application

- With this setup, you can enjoy prerecorded S-VHS Hi-Fi tapes in stereo while viewing them on an S-VIDEO-equipped television.
- With this setup, monitoring while shooting is also possible.

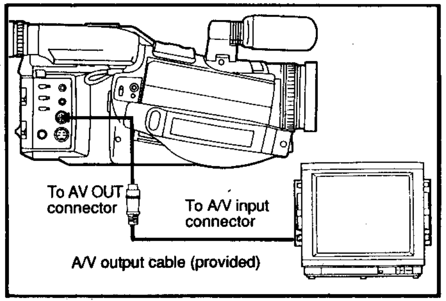
CAUTIONS:

- The GR-S505U has a wide dynamic range in the Hi-Fi audio mode. It is recommended that you check the maximum level if you are going to listen to the Hi-Fi audio signals through a stereo amplifier. A sudden surge in speaker input may cause speaker damage.
- Some speakers and televisions are specially shielded to prevent television interference. If neither is shielded, do not place the speakers adjacent to the television, otherwise the video playback picture will have interference.

2 Connection to a television equipped with A/V input connector

In this situation, use the provided A/V output cable.

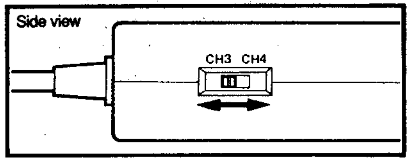
- Simply connect the AV OUT connector of the GR-S505U to the A/V input connector of the television.
- Use the Video (or AV) mode specified on the television, in stead of tuning to channel 3 or 4.



3 Connection to a television not equipped with A/V input connector

In this situation, use the provided RF-V3U RF unit.

1 Set the out put channel select switch of the RF-V3U to CH3 or CH4.



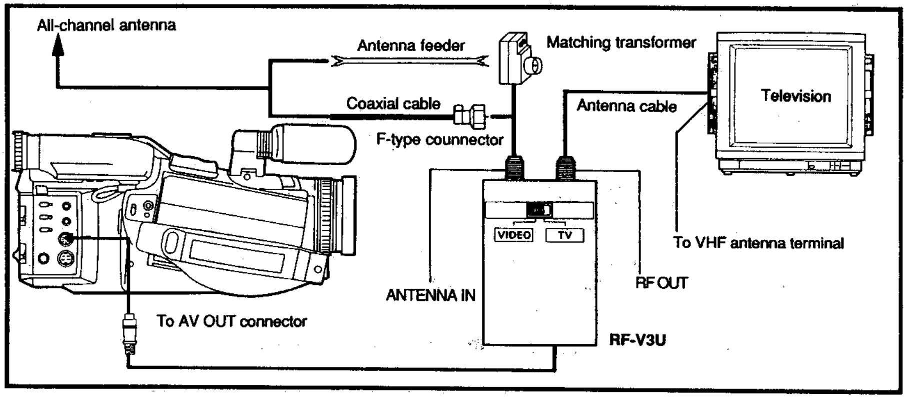
- The RF unit permits playback of the video and audio recordings through a TV receiver. The signals from the RF unit are viewed through a vacant channel not used for broadcasting in your area.
- The RF unit has been set to CH3 prior to shipment. Reset the channel to CH4 (using a screwdriver) in areas where channel 3 is employed for broadcasting.
- This is your video channel. To view video cassettes, always set the TV channel selector to either channel 3 or 4.

PRECAUTIONS FOR RF-V3U

- For exclusive use with the VideoMovie.
- Do not disassemble or remodel the RF-V3U.
- Do not expose it to strong shocks.
- Unplug the connected equipment during lightning storms. (Never touch the antenna cable.)

2 Remove the antenna cable from the TV receiver.

3 Connect the antenna cable to the ANTENNA IN terminal of the RF unit.



4 Connect the RF OUT terminal of the RF unit to the 75-ohm coaxial antenna terminal of the television using the provided antenna cable.

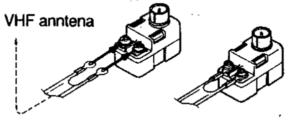
5 Connect the VIDEO/AUDIO INPUT cable of the RF unit to the AV OUT connector of the GR-S505U

Operation

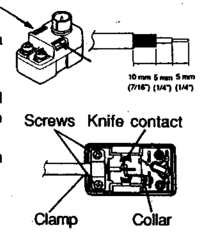
- Viewing video cassettes being played back with the GR-S505U
  To view video cassettes or to monitor the recording, set the VIDEO/TV switch of the RF unit to VIDEO and the TV channel selector to the channel corresponding to the RF output channel (3 or 4).
- Viewing television programs
  Set the VIDEO/TV switch to TV, and the television will function as usual.

How to affix the matching transformer to your VHF antenna cable

- If your VHF antenna cable is a 300-ohm flat feeder, connect the two lugs to the screws in an ordinary manner.
- If your VHF antenna cable is a 75-ohm coaxial cable, proceed as follows:



1. Press both side tabs inward and slide the cover off.
2. Strip the coaxial cable with a pair of wire strippers, a knife, or the like as shown.
3. Remove the collar and put it on the pole inside the cover.
4. Loosen the screw for the clamp and insert the stripped cable so that the braided portion is positioned under the clamp.
5. Inset the stripped end (core conductor) of the cable from above into between the knife contacts.
6. Tighten the screws.
7. Replace the cover.



OPERATION

Viewing video cassettes being played back with the GR-S505U

To view video cassettes or to monitor the recording, set the VIDEO/TV switch of the RF channel selector to the channel corresponding to the RF-output channel (3 or 4).

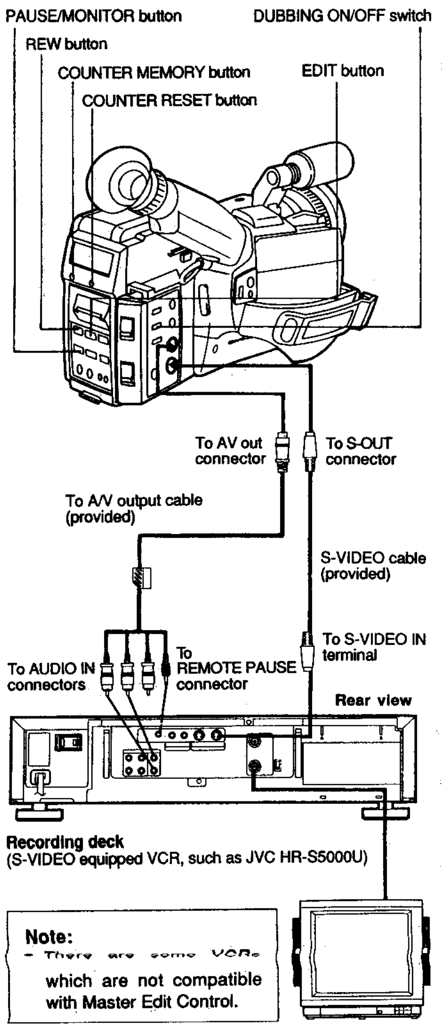
Viewing television programs

Set the VIDEO/TV switch to TV, and the TV receiver will function as usual.

EDITING TECHNIQUES

1 MASTER EDIT CONTROL SYSTEM (Assemble Editing) (When using a JVC VCR equipped with a Remote Pause terminal)

This feature functions only when using a designated JVC VCR equipped with a Remote Pause terminal. The Master Edit Control system enables control of the VCR via the VideoMovie's controls, for quality preroll editing without transition-point gaps and distortion.


PAUSE/MONITOR button
DUBBING ON/OFF switch
REW button
COUNTER MEMORY button
EDIT button
COUNTER RESET button
To AV out connector
To S-OUT connector
To A/V output cable (provided)
S-VIDEO cable (provided)
To S-VIDEO IN terminal
To AUDIO IN connectors
To REMOTE PAUSE connector
Rear view
Recording deck
(S-VIDEO equipped VCR, such as JVC HR-S5000U)

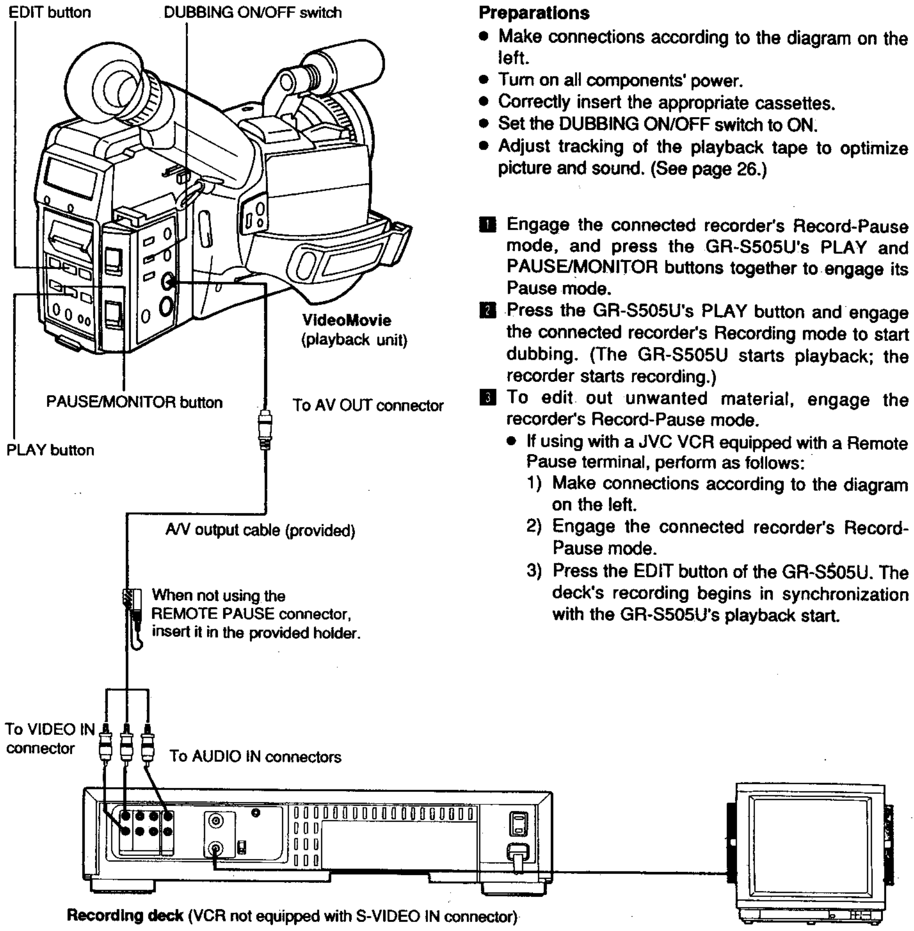
Note:
- There are some VCRs which are not compatible with Master Edit Control.

Preparation
- Connect the GR-S505U and the recording deck as in the diagram on the left.
- Turn on both the GR-S505U and the recording deck.
- Correctly insert the appropriate cassettes into the GR-S505U and the recording deck.
- Adjust tracking of the playback tape to optimize picture and sound. (See page 26.)

1. Engage the recording deck's Record-Pause mode. (At this time, the tape in the deck winds backward for 1.3 seconds.)
2. Set the DUBBING ON/OFF switch of the GR-S505U to ON.
3. Engage the GR-S505U's Play mode to locate the edit-out point on the tape. When this point is reached, press PAUSE/MONITOR.
4. Press RESET on the GR-S505U then press MEMORY. "0 M" will appear on the LCD panel.
5. Press REW to locate the edit-in point. When it is reached, engage the Still mode.
6. Press EDIT on the GR-S505U to start editing.
   - At this time, the GR-S505U and the recording deck carry out the following procedure automatically.
     1) The GR-S505U prerolls the tape for 5 seconds then starts playback to stabilize the tape run.
     2) After the GR-S505U has played back for 3.7 seconds, it sends a command signal to the recording deck. The deck then starts playback together with the GR-S505U for 1.3 seconds.
     3) When the GR-S505U's tape reaches the edit-in point, the deck starts recording in synchronization with it.
7. When the GR-S505U's tape reaches the edit-out point (counter reading of "0"), the VideoMovie enters the Still mode and the recording deck enters in the Record-Pause mode automatically.
   - Repeat above steps as required.
   - When the tape reaches the preset edit-out point during the dubbing operation, it may stop slightly before or after the designated point on the tape.

2 TAPE DUBBING (Dubbing to a second recorder)

In order to preform simple dubbing of an entire tape, proceed as follows.


EDIT button
DUBBING ON/OFF switch
VideoMovie
(playback unit)
PAUSE/MONITOR button
To AV OUT connector
PLAY button
A/V output cable (provided)
When not using the REMOTE PAUSE connector, insert it in the provided holder.
To VIDEO IN connector
To AUDIO IN connectors
Recording deck (VCR not equipped with S-VIDEO IN connector)

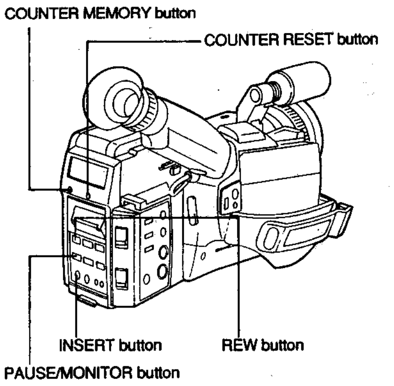
Preparations
- Make connections according to the diagram on the left.
- Turn on all components' power.
- Correctly insert the appropriate cassettes.
- Set the DUBBING ON/OFF switch to ON.
- Adjust tracking of the playback tape to optimize picture and sound. (See page 26.)

1. Engage the connected recorder's Record-Pause mode, and press the GR-S505U's PLAY and PAUSE/MONITOR buttons together to engage its Pause mode.
2. Press the GR-S505U's PLAY button and engage the connected recorder's Recording mode to start dubbing. (The GR-S505U starts playback; the recorder starts recording.)
3. To edit out unwanted material, engage the recorder's Record-Pause mode.
   - If using with a JVC VCR equipped with a Remote Pause terminal, perform as follows:
     1) Make connections according to the diagram on the left.
     2) Engage the connected recorder's Record-Pause mode.
     3) Press the EDIT button of the GR-S505U. The deck's recording begins in synchronization with the GR-S505U's playback start.

- With an S-VHS VCR equipped with an S-VIDEO IN terminal, use the provided S-VIDEO cable for connection as described on page 30 to obtain higher-quality dubbing results.

3 INSERT EDITING

Insert editing means recording a new scene into a section of prerecorded tape so that a part of the original recording can be replaced with a new sequence without excessive picture distortion at the edit-in and edit-out points. In the Insert Edit mode, the original audio on the normal audio track remains unchanged.



1. Slide the control panel cover to "PLAY".
2. Locate the desired edit-out point on the VideoMovie's tape and press PAUSE/MONITOR.
3. Press RESET to obtain a "0" reading, then press MEMORY to obtain an "M" indication on the LCD.
4. Press REW to rewind the tape a little beyond the beginning of the scene your wish to insert.
5. Press PAUSE/MONITOR exactly at the beginning of the scene you wish to insert.
6. While holding INSERT pressed, press PAUSE/MONITOR. The INSERT indicator lights and the VideoMovie enters the Insert Edit mode with the scene at which the VideoMovie is aimed appearing on the screen for monitoring.
7. Press the Recording Start/Stop button to insert the new sequence.
8. When the counter reading of "0" is reached, insert editing stops automatically and the VideoMovie enters the Playback mode.

Notes:

- When the tape reaches the preset edit-out point during the editing operation, it may stop slightly before or after the designated point on the tape.
- Only video and Hi-Fi audio signals are recorded in the Insert Editing mode. When the normal sound is to be recorded, press the AUDIO DUB and PAUSE/MONITOR buttons simultaneously in the Insert Pause mode. When INSERT and PAUSE/MONITOR buttons are pressed simultaneously again, the unit re-enters the Video-signal-only Recording mode.

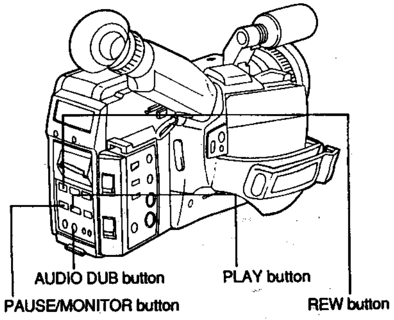
4 AUDIO DUBBING

Audio dubbing means recording a new soundtrack on a pre-recorded tape, i.e., replacing the original sound with new audio material.

Audio dubbing is applicable only to the longitudinal audio track (normal audio). Audio dubbing on the Hi-Fi audio track cannot be performed.

Precautions

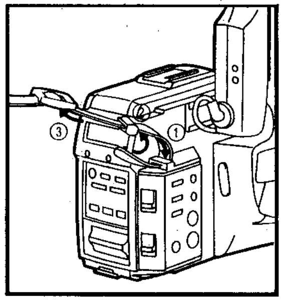
- Tapes with their safety tabs removed cannot be audio dubbed. Reseal the safety tab slot to perform the dubbing.
- If whistling or howling is heard during audio dubbing, reduce the TV volume of move the mike farther away from the TV.
- When dubbing from a microphone, connect the microphone to the VideoMovie.



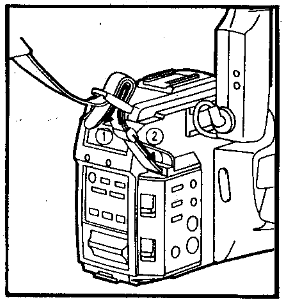
1. Locate the desired edit-out point on the VideoMovie's tape and press PAUSE/MONITOR.
2. Press RESET to obtain a "0" reading, then press MEMORY to obtain an "M" indication on the LCD.
3. Press REW to locate more quickly the place on the tape you want audio dubbing to begin.
4. Press PAUSE/MONITOR at the exact beginning point for audio dubbing.
5. While pressing AUDIO DUB, press PAUSE/MONITOR to enter the Audio Dub Standby mode.
6. When you are ready, press PLAY to begin audio dubbing.
7. When the counter reading of "0" is reached, audio dubbing stops automatically and the VideoMovie enters the Playback mode.

USING ACCESSORIES

ATTACHING THE SHOULDER STRAP (provided)

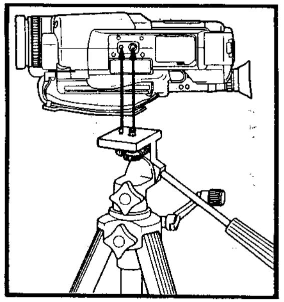


1. Loop the end of the strap over the top of the eyelet ①, then, folding it back, thread the end of the strap first through the keeper ②, then the buckle ③. Making sure that the strap is not twisted, repeat the above procedure to attach the other end of the strap to the other eyelet.



2. Adjust the shoulder strap to the desired length ①, then slide both keepers up snug against the eyelets to prevent the strap from slipping ②.

TRIPOD MOUNTING

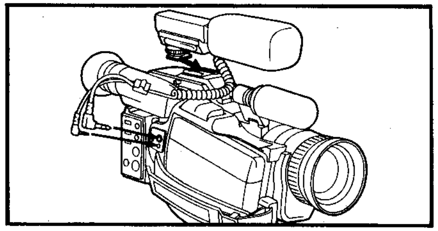


Align the screw and camera direction stud of the tripod with the camera's tripod mounting socket and stud hole, and firmly tighten the screw.

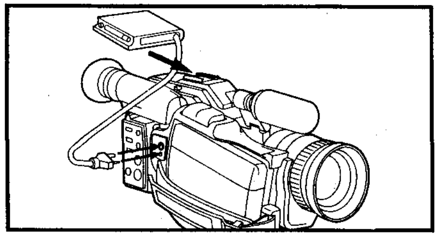
EXTERNAL MICROPHONE

- Set the MIC select switch appropriately depending on the microphone used.

To use another microphone, do the following:



Plug the external microphone's cord into the MIC jack.

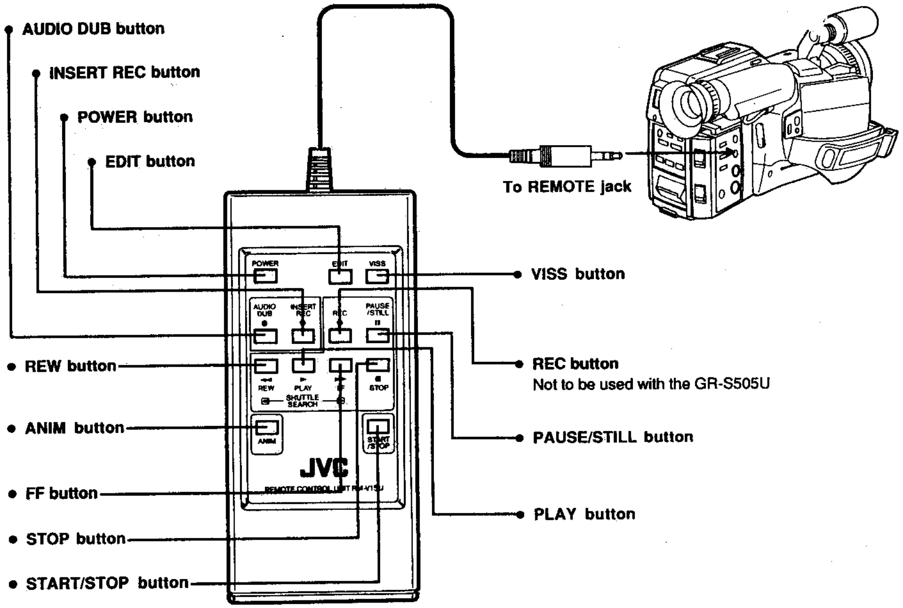


Attaching a wireless microphone unit.

CAUTION
This VidoMovie's accessory shoe is not designed to normally have a video light unit installed on it. However, if a low-power video light unit is installed, direct its light horizontally or upward while shooting, so that it does not shine directly on the VideoMovie's body. Since a video light unit and its surroundings become hot, be careful not to burn yourself when using one. Read the video light unit's instruction manual and handle the unit with care.

USING THE REMOTE CONTROL UNIT RM-V15U (optional)

The optional RM-V15U remote control unit permits VCR functions to be controlled from a distance.


AUDIO DUB button
INSERT REC button
POWER button
EDIT button
REW button
ANIM button
FF button
STOP button
START/STOP button
To REMOTE jack
VISS button
REC button
Not to be used with the GR-S505U
PAUSE/STILL button
PLAY button
POWER
EDIT
VISS
AUDIO DUB
INSERT REC
REC
PAUSE /STILL
REW
PLAY
FF
STOP
SHUTTLE SEARCH
ANIM
START /STOP
JVC
REMOTE CONTROL UNIT RM-V15U

RM-V15U's buttons	Functions	
	With the GR-S505U's control panel cover set to "REC"	With the GR-S505U's control panel cover set to "PLAY"
POWER button	POWER switch	POWER switch
EDIT button	Q. REVIEW button	EDIT button
VISS button	VISS button	—
AUDIO DUB button	—	AUDIO DUB button
INSERT REC button	—	INSERT button
REC button	—	—
PAUSE/STILL button	REC PAUSE button	PAUSE/MONITOR button
REW button	RETAKE (R) button	REW/SEARCH button
PLAY button	REC START button	PLAY button (start button)
FF button	RETAKE (F) button	FF/SEARCH button
STOP button	—	STOP button
ANIM button	ANIM button	—
START/STOP button	*REC START/STOP* button	START button

- Functions of the RM-V15U's control buttons vary depending on the GR-S505U's control panel cover position as specified on the left.

Installing the batteries

1. Slide the battery compartment cover on the rear of the unit.
2. Insert 2 "AA-size" batteries (provided) in the correct directions into the battery compartment.
3. Replace the cover.

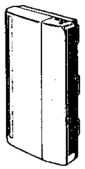
Precautions

- Avoid violent shocks, especially take care not to drop the unit.
- Take care not to allow liquid to spill into the unit.
- Do not place heavy objects on the unit.
- Avoid leaving the unit in places subject to direct sunlight or extremely high temperatures.

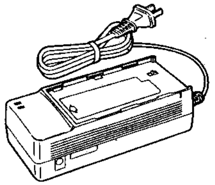
SYSTEMS FLEXIBILITY

For maximum enjoyment, make the most of the provided or optional accessories depending on the situation.

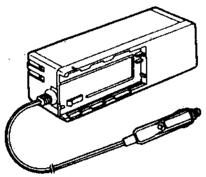
- **Regular battery pack BN-V5GU**
- **High-capacity battery pack BN-V6GU**
- **Super High-capacity battery pack BN-V7GU**
  Pages 7 and 8



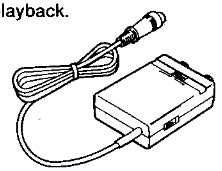
- **AC power adapter/battery charger AA-V6U**
  Pages 7 and 8
  Use to power the GR-S505U with household AC current or charge the battery pack.



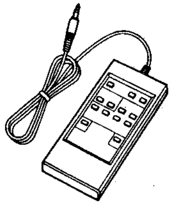
- **Car battery charger/adapter BH-V5U**
  Page 8
  Use to charge the battery pack, or power the GR-S505U using a car battery.



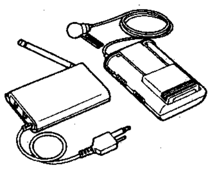
- **RF unit RF-V3U**
  Page 29
  Use to connect the GR-S505U to a regular television for playback.



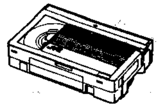
- **Remote control unit RM-V15U**
  Page 34
  Controls VideoMovie's VCR functions from a distance.



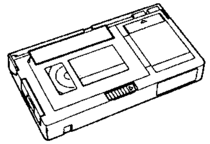
- **Wireless microphone unit WM-V1U**
  Page 33
  Allows remote sound recording, for expanded movie-making flexibility.



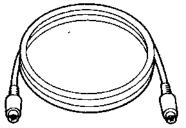
- **S-VHS-C cassettes ST-C30/C20**
  VHS-C cassettes TC-30/20
  Page 38
  Allows 30/20 minutes of S-VHS or VHS recording and playback respectively.



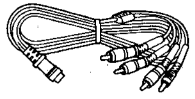
- **Cassette adapter C-P6U**
  Page 27
  Enables the S-VHS-C or VHS-C cassette to be used with regular S-VHS/VHS machines.



- **S-VIDEO cable VC-V44U**
  Pages 27 and 30
  Use to connect the GR-S505U to a television equipped with an S-VIDEO input connector for playback, or an S-VHS VCR for dubbing or editing.



- **A/V stereo output cable VC-V8632U**
  Pages 27, 28, 30 and 31
  Use to connect the GR-S505U to a stereo television equipped with audio/video input connectors (or an audio component system) for playback, or a VCR equipped with stereo audio inputs for dubbing or editing.



SUPPLEMENTAL INFORMATION

What is "color temperature"?

Light is composed of various color components in different proportions. A relationship exists between the temperature of a light source and the color components of the emitted light; as the temperature rises, the color of the light varies from red, orange, yellow, white to blue in that order. "Color temperature" is a value that expresses differences in color among light sources, measured in Kelvin degrees. Bluish light has a higher color temperature than reddish light.

What is "white balance"?

Making the colors look natural on TV is what white balance is all about. Because a camera is not as adaptable as the human eye, if a light source is reddish, white subjects in that light are recorded as reddish. White balance adjustment is performed to compensate for color temperature variations of light so that whites are reproduced as white. Correct white balance makes all other colors correct. The GR-S505U can perform automatic white balance adjustment in the Full Auto mode. However, if illumination is insufficient, white balance adjustment cannot be performed. To obtain correct colors, therefore, sufficient illumination is essential.

What is "illuminance"?

"Illuminance" (also called "luminance") is the intensity or brightness of light, expressed in lux. The GR-S505U is designed to provide best pictures under the conditions of a 700-lux (67 fc) illuminance, although shooting is possible all the way down to 5 lux (0.5 fc). To obtain good pictures in very bright light, the use of an ND (neutral density) filter is recommended. (See chart on the right.)

How to get good color pictures.

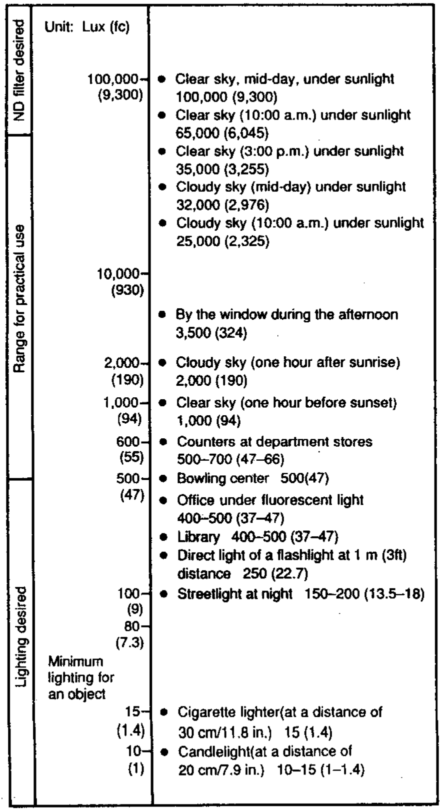
The simplest way is to provide sufficient lighting (close to the camera's reference illuminance) and accurately adjust the camera to the color temperature of that lighting. If light sources of different color temperatures are used together, accurate white balance adjustment is very difficult. For example, if natural light is mixed with artificial light, which is likely to occur next to windows, correct colors of the subject are difficult to obtain. It is recommended in such cases that curtains in the room be closed to shut out light from outside. Also, when artificial lighting devices are used, they should all have the same color temperature. For example, it is recommended that incandescent or halogen lamps not be used together with fluorescent lighting.

Color temperatures of various artificial lighting

Type of illumination		Color temperature
Tungsten lamp for home use		2800 K
Tungsten lamp for photographic use		3200 K
Quartz-halogen lamp		
Blue lamp for photographic use		5000 K
Fluorescent lamp	Warm white	3500 K
	White	4500 K
	Daylight type	6500 K

Illumiance chart

- The values on this chart are approximated to give you a rough reference.



CAUTIONS

For safety, strictly observe the following instructions.

- Do not open the cabinet.
- Prevent inflammables, water and metallic objects from entering the unit.
- Do not disassemble or modify the unit.
- Do not use the unit when there is lightning in the vicinity. Disconnect the power cable of connected equipment.

Avoid using the unit under the following conditions:

- Places subject to excessive humidity or dust.
- Near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
- Places subject to soot or steam such as near a cooking stove.
- Places subject to excessive shock or vibration.
- Near a television set (rolling pictures or howling might result).
- Extremely hot places.

Do not expose the unit to high temperatures over 40°C (104°F) for long periods.

If the unit should be subjected to direct sunlight, or left in a closed car in summer, or placed near a heater, the CCD may deteriorate and the cabinet may become deformed. Furthermore, this also may cause the transistors and other electronic and mechanical parts to malfunction. Remember the following:

- Do not leave the unit in places of over 50°C (122°F).
- Do not use the unit in places of over 40°C (104°F).
- Do not use the unit in places of below 0°C (32°F).
- Protect the unit from excessively dry or humid conditions (below 35% or above 80% humidity).
- For long storage, select a place between –20°C (–4°F) and 30°C (86°F).

Take special care for protection of the unit.

- Do not allow the unit to become wet.
- Do not leave the unit in closed cars on hot summer days.
- Take special care not to drop the unit or strike it against hard objects. Protect from shocks during transportation.

Make it a rule to observe the following instructions.

- Do not remove the battery pack or disconnect other power supply units during recording or playback before pressing the POWER switch to OFF. If not observed, this will cause tape damage.
- When the unit is not in use, remove the battery pack.

Keep the lens and viewfinder eyepiece always clean.

- When the lens if dirty or dusty, blow it off first and then gently wipe with a soft brush or lens cleaning paper.
- The lens is likely to become moldy if left dirty.

Be careful not to damage the CCD.

- Do not keep the lens directed at extremely bright objects such as the sun or other light sources for long periods. Although the CCD is less susceptible to such burn than a tube would be, caution should be exercised when using this unit. Most importantly, the lens should be capped except while actually shooting.
- Do not direct the eyepiece of the viewfinder at the sun.

Handle the unit carefully.

- Protect the microphone from excessive shocks.
- Do not carry the unit by holding it only by the viewfinder.

VIDEO CASSETTES

Moisture condensation prevents use of the unit.

- You have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass's outer surface. This same phenomenon occurs on the head drum of a VideoMovie when it is moved from a cool place to a warm place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.
- Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the VideoMovie itself.
- If moisture condensation occurs on the head drum, a condensation warning appears above the counter display and the unit enters the Stop mode, unable to function. In such a case, wait for a few hours until the indicator disappears.

Maintenance

- When the cabinet is dusty, clean by gently wiping with a soft cloth.
- Avoid the use of strong cleaning agents such as benzine or alcohol as they may damage the cabinet.
- Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.

Serious malfunctioning

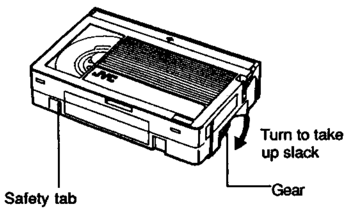
If malfunctioning occurs, stop using the unit immediately and consult your local JVC dealer.

General Battery Precautions

- When the optional RM-V15U remote control unit is not functioning even when correctly operated, the battery is exhausted. Replace it with a fresh AA battery.
- Use only AA-size batteries in the unit. Please make note of the following rules for battery use. When misused, batteries can leak or explode.

1. Insert the batteries correctly according to the diagram inside the battery section.
2. Do not use old and new batteries together.
3. Do not use two different kinds of batteries. Although sizes may be the same, voltages may differ.
4. Do not expose batteries to excessive heat as they can leak, or explode. Do not dispose of batteries in a fire.
5. Remove batteries from the unit if it is to be stored for an extended period to avoid battery leakage which can cause malfunctions.

- The GR-S505U employs only the cassettes carrying the respective S-VHS-C and the VHS-C marks.
- Recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
- An inverted cassette cannot be inserted.
- Do not load and unload the cassette repeatedly without allowing the tape to run at all. This will slacken the tape and thereby damage it.
- Make certain before loading the cassette that the tape is not slack. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up slack.
- The cassette is equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording is impossible. If you wish to record on a cassette whose tab has been removed, use adhesive tape to reseal the slot.
- To avoid excessive exposure to dust and fingerprints, do not open the front tape cover.



Storage of cassettes

- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid storing the cassettes in humid or dusty places.
- Do not drop the cassettes. Do not expose them to violent vibrations or shocks.
- Do not expose the cassettes to strong magnetic fields (near a motor, transformer or magnet).
- Place the cassettes in cassette cases and position them vertically.

IN CASE OF DIFFICULTY

What may initially appear to be trouble is not always a real problem. Make sure first...

Symptoms	Check points
Power	
No power is supplied.	● Is the battery pack correctly installed? ● Is the battery pack charged? ● Is the power supply unit correctly connected?
Recording	
Recording is impossible.	● Check to see if the cassette safety tab in place. See page 38. ● Is the control panel cover set to "REC"?
Picture colors greatly differ from actual subject colors.	● If in the manual white balance mode, check the setting of the WHITE BALANCE button.
No sound is recorded with an external microphone.	● Is the microphone's switch set to ON?
Recording does not start.	● Have you slidden the control panel to REC first?
Playback	
Tape is running, but no playback picture appears.	● Is the VIDEO/TV switch of the RF unit set to VIDEO? ● Is the TV receiver set to your video channel? ● If A/V connection is used, is the TV's VIDEO/TV switch set to VIDEO?
Noise bars appear in the playback picture.	● Use the manual TRACKING buttons to reduce noise bars.
Soundtrack on the Hi-Fi audio track cannot be reproduced.	● Is the AUDIO OUT select button set to NORM? —Set it to Hi-Fi.
Playback picture and/or Hi-Fi audio is blurred or interrupted.	● Video heads may be dirty or worn out. For head cleaning or replacement, consult the nearest JVC Service Dealer.
Tape transport	
Tape stops during fast forward or rewind.	● Is the "M" indication visible on the LCD? If so, press the MEMORY button to cancel the memory function.
Rewinding or fast forwarding is impossible.	● Check to see if the tape has already been fully wound on one reel or the other.
Other	
No function is available with more than two mode indicators lit.	● If this should happen when using power supply units other than the battery pack, turn their POWER switch on and off. With a battery pack, replace it with another charged one.
Vertical white lines appear when shooting a very bright object.	● This may occur when the background contrasts very much with the object. This is normal.
Picture is blurred in the Quick Review or Retake mode.	● Is the SP/EP recording mode select switch properly set?

The GR-S505U is a microcomputer-controlled device. External noise and interference might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC power adapter, etc.); and then reconnect it and proceed as usual from the beginning.

SECTION 1
SERVICE CAUTIONS & DISASSEMBLY

1.1 PRECAUTION

1. Disconnect unit from power before removing or soldering components.
2. When removing a connector, pay special attention to flexible wires and wiring so as not to damage them.
3. Some resistors, shorting jumpers (0 ohm resistance), ceramic capacitors and diodes are chip parts. These chip parts cannot be reused after they are once removed. Refer to Section 1.3.
4. When removing and replacing parts, be careful not to damage or displace other parts. (Be especially careful with the video head assy and the tape transport mechanism.)
5. When removing and replacing IC's, be careful not to damage circuit patterns.

1.2 REQUIRED TEST EQUIPMENT, FIXTURES/TOOLS AND OTHERS

For proper measurement, adjustment and maintenannce, the following test equipment, fixtures/tools are strongly recommended.

1.2.1 Test equipment

1. Color video monitor
2. AC power adapter (AA-V6U or equivalent)
3. Oscilloscope (dual-trace type, more than 20 MHz)
4. Frequency counter
5. Audio tester and Audio signal generator
6. Video signal generator
7. Sweep signal generator
8. Vectorscope
9. AV output cable

- Color bar signal

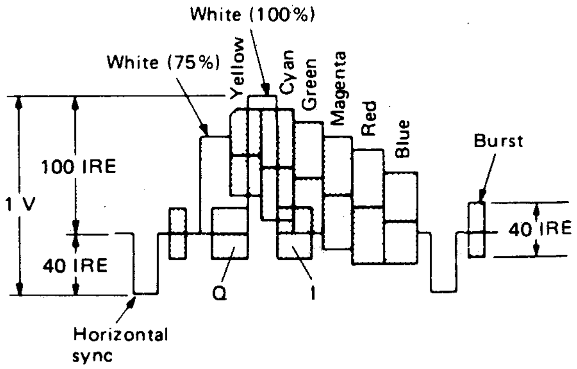

White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
100 IRE
1 V
40 IRE
40 IRE
Q
I
Horizontal sync

Fig. 1-2-1 Color bar signal waveform

- Color bar pattern

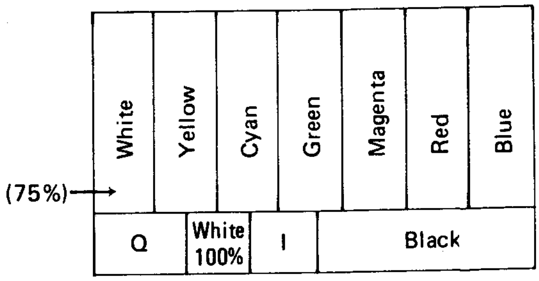

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Fig. 1-2-2 Color bar pattern

- Color sweep signal

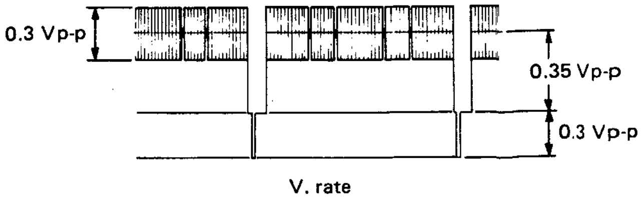

0.3 Vp-p
0.35 Vp-p
0.3 Vp-p
V. rate

Fig. 1-2-3 Color sweep signal

1.2.2 Special test equipment and tools for adjustment

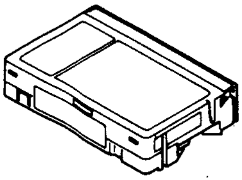
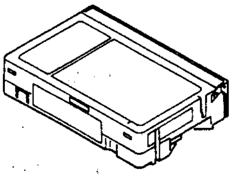
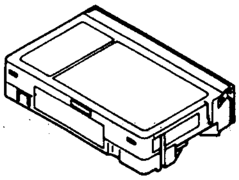
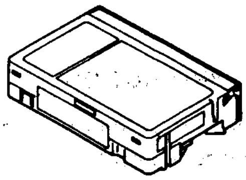
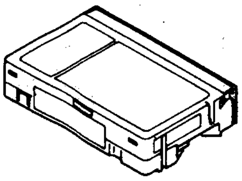
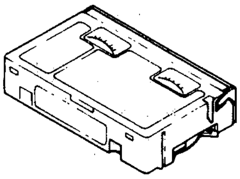
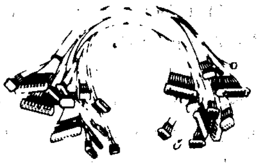
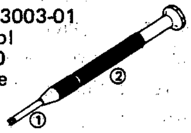
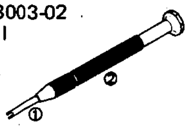
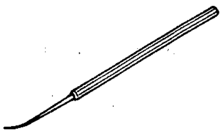
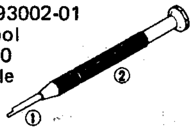
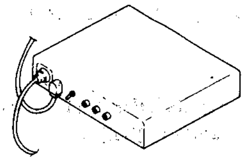
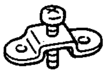
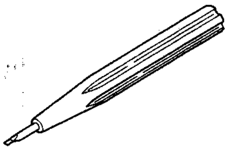
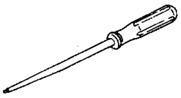
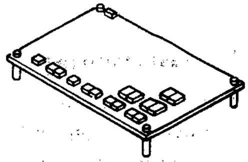
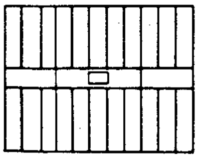
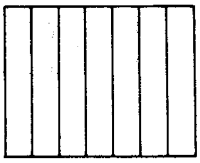
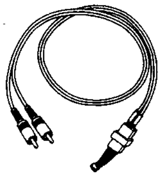
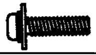
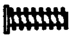
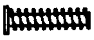
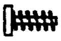
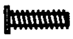
Alignment tape for SP interchangeability (MHP-C or MH-C1)	Alignment tape for EP interchangeability (MHP-LC)	Alignment tape for N. SP PB Y/C level (MHV-2C or MH-C1)	Alignment tape for S. SP PB Y/C level (MHV-2HC or MH-C1H)
			
Alignment tape for N. SP PB FM audio level (MHAF-1C)	Cassette torque meter PUJ50431-2	Patch cords set YTU93039A	Chip parts replacing tool YTU93003A (incl. ① & ②)
			① YTU93003-01 Bit tool ② PD-3.0 Handle  Orders for ① & ② can be placed separately.
Chip parts replacing tool YTU93003B (incl. ① & ②)	Chip IC replacing tool PTS40844-2	A/C head positioning tool YTU93002A (incl. ① & ②)	Y/C separator PUJ25579
① YTU93003-02 Bit tool ② PD-3.0 Handle  Orders for ① & ② can be placed separately.		① YTU93002-01 Bit tool ② PD-3.0 Handle  Orders for ① & ② can be placed separately.	
Upper drum removing jig YTU94031A	Ultramini VR adjusting driver YTU93036	0.35 mm adjusting driver YTU94028	EVR adjuster YTU93041A
		 (ENGINEER DA-08)	
Gray scale pattern (GS-2A) Reflection type, 11 steps, $\gamma = 2.2$	Color bar pattern (CC-2A) Reflection type, 7 colors	Cable for Y/C separator YTU93006	
			

Table 1-2-1

1.2.3 Main screws to deal with for disassembly/reassembly

For a reference of disassembling/reassembling the set, the shapes and parts numbers of main screws are shown below.

Symbol of screws	Shape	Part No.	Symbol of screws	Shape	Part No.	Symbol of screws	Shape	Part No.
Screw Ⓐ		YQM30032-1-2	Screw Ⓕ		DPSP2010Z	Screw Ⓛ		SPSH1720M
Screw Ⓑ		YQM30032-4-2	Screw Ⓖ		SPSK2004F	Screw Ⓜ		YQM30032-41
Screw Ⓒ		SSSK2004D	Screw Ⓗ		SPSP2004Z	Screw Ⓝ		YQM30032-5-2
Screw Ⓓ		YQM30032-2-2	Screw Ⓙ		YQ41343	Screw Ⓟ		SPSH1735M
Screw Ⓔ		YQM30032-29	Screw Ⓚ		SPSH1725M	Screw Ⓠ		YQM30032-6-2

Note: Symbol of encircled alphabet corresponds to that of a screw mentioned in the disassembly/reassembly procedure of the following.

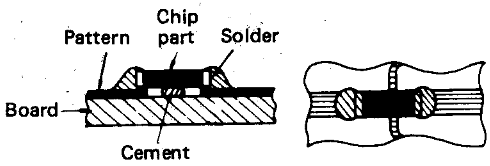
1.3 REPLACEMENT OF CHIP PARTS

For replacing chip parts, proceed as follows.
Use a well-insulated fine-tipped soldering iron (approx. 17 W, 130°C ~ 260°C in temperature).
In addition, it is recommended to use a soldering iron with solder absorber (55 W approx.) for convenience.

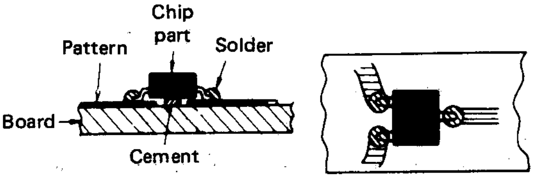
Caution:
- *Do not apply heat for more than 3 seconds.*
- *Do not rub electrodes.*
- *Do not reuse chip parts which were removed once.*
- *Supplementary cementing is not required.*

1.3.1 Soldered condition of chip parts

- Resistors, capacitors, etc.



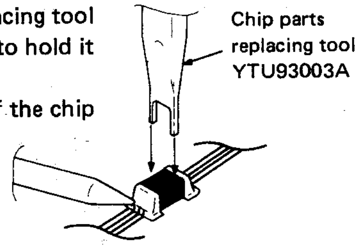
- Transistors, diodes, etc.



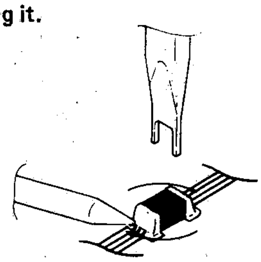
1.3.2 How to remove chip parts

- Resistors, capacitors, etc.

1. Set a chip parts replacing tool onto the chip parts to hold it down.
2. Unsolder at a side of the chip parts.

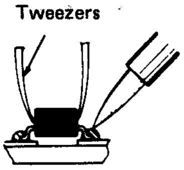


3. Remove the chip part by twisting and sliding it.

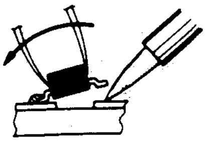


- Transistors, diodes, etc.

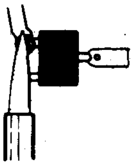
1. Unsolder at the one-lead side of the chip parts.



2. Lift the unsoldered side upward.



3. Heat the other two leads simultaneously and remove the chip parts upward.

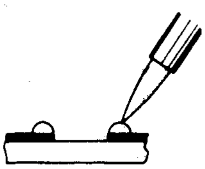


1.3.3 Preheating and soldering chip parts

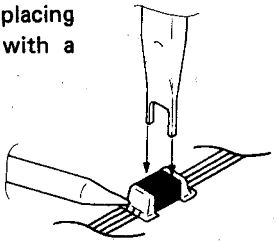
Just before soldering new chip parts except transistors, but capacitors including, preheat them with hot air (150°C approx.) by use of a blower type of hair dryer for about 2 minutes. Immediately after that, solder it with a soldering iron of 30 W approx.

1.3.4 How to set and solder chip parts

1. Presolder the contact points of the circuit pattern to which the chip parts will be soldered.



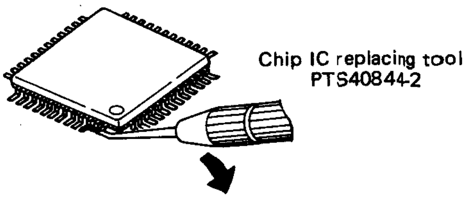
2. Hold down the chip parts with the chip parts replacing tool, then, solder it with a soldering iron.



1.4 REMOVING OF FLAT ICs

(Recommended method)

1. For removing solder chips from IC's pins, use a solder remover or a braided solder absorber.
2. Heat the IC's tips evenly by moving the chip IC replacing tool around them, and carefully separate the IC's leads with the tool as illustrated.
3. Do not reuse ICs removed once. (Discard them.)



1.5 DISASSEMBLY OF CAMERA SECTION

Note: *Three kinds of double-arrows in connection tables respectively show kinds of connectors/wires.*

⬌: Board-to-Board connector
⬄: Flat wire
↔: Wire

1.5.1 Cassette cover

1. Remove two screws Ⓐ to detach the cassette cover.

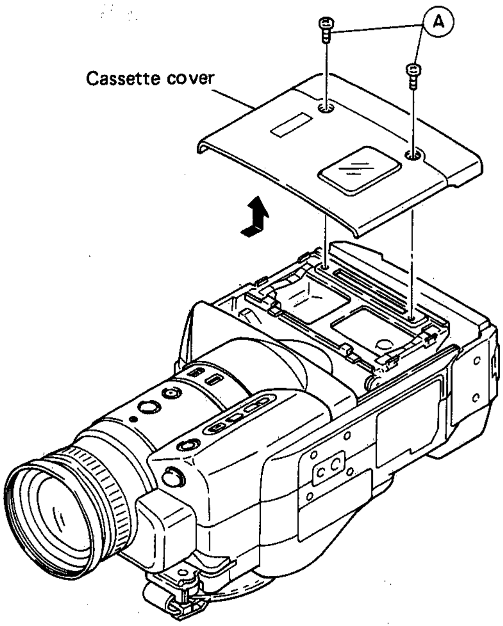


Fig. 1-5-1 Cassette cover

1.5.2 Operation unit

1. Remove two screws Ⓐ and two screws Ⓑ.
2. Disconnect the connector ① to detach the operation unit.

Con-nector	No. of pins	Connection
①	16	Operation unit ⬌ $\boxed{0}\boxed{1}$ MAIN CN10

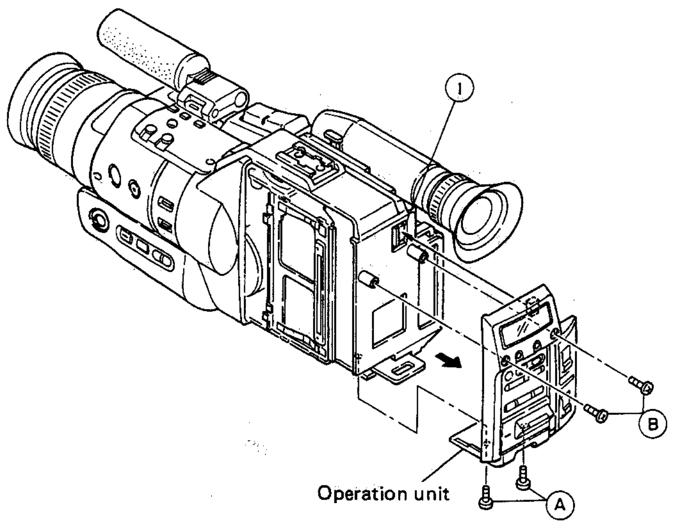


Fig. 1-5-2 Operation unit

1.5.3 Top cover

1. Remove two screws Ⓒ to detach the top cover.

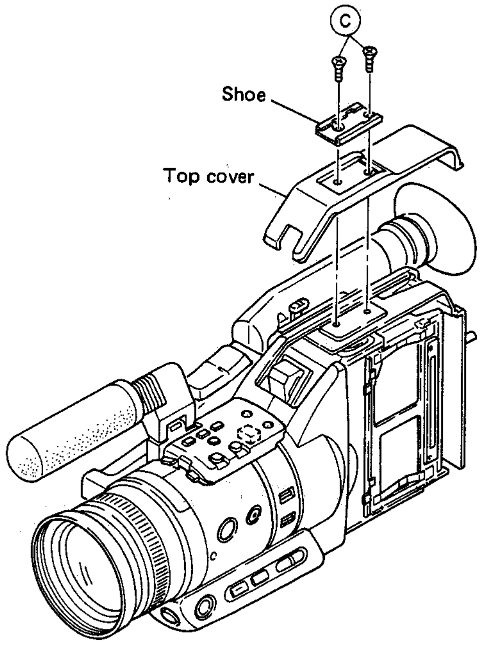


Fig. 1-5-3 Top cover

1.5.4 Front cover assy

1. Remove two screws Ⓝ.
2. Disconnect the connector ① to detach the front cover.

Con-nector	No. of pins	Connection
①	4	$\boxed{2}\boxed{7}$ T. SW CN741 ↔ $\boxed{2}\boxed{3}$ CTL CN308

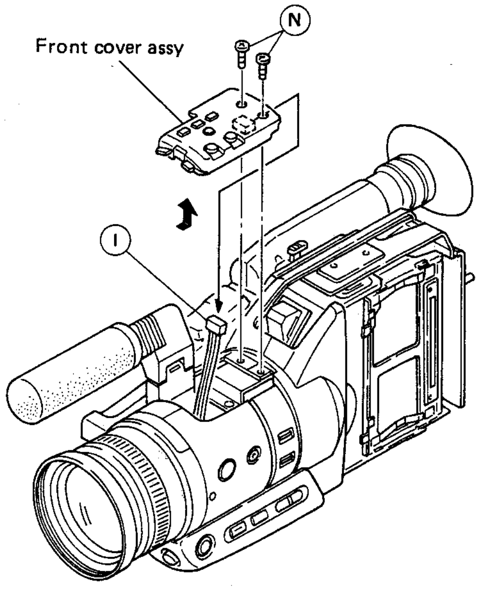


Fig. 1-5-4 Front cover assy

1.5.5 Upper case assy, Clock battery cover

1. Remove four screws Ⓐ, a screw Ⓑ and two screws Ⓓ.
2. Disconnect the connector ① to detach the upper case assy and clock battery cover.

Con-nector	No. of pins	Connection
①	7	$\boxed{2}\boxed{8}$ C. SW CN701 ⇔ $\boxed{2}\boxed{3}$ CTL CN306

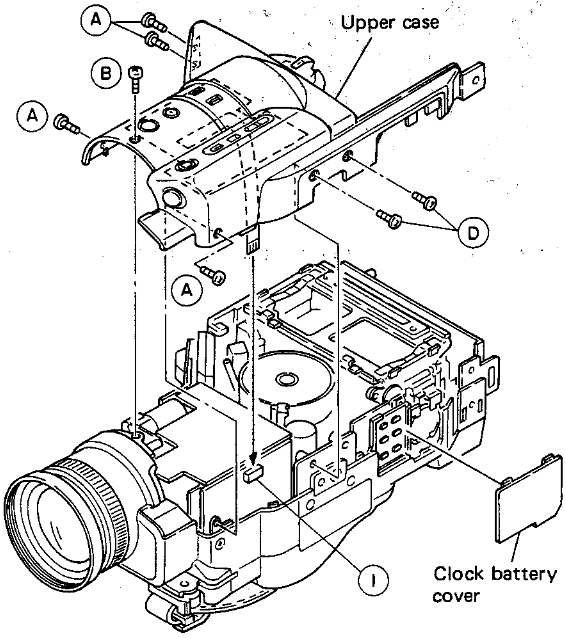


Fig. 1-5-5 Upper case assy, clock battery cover

1.5.6 Clock battery holder

1. Disconnect the connector ① to detach the clock battery holder.

Con-nector	No. of pins	Connection
①	4	$\boxed{2}\boxed{9}$ D. SW CN771 ⇔ $\boxed{2}\boxed{3}$ CTL CN307

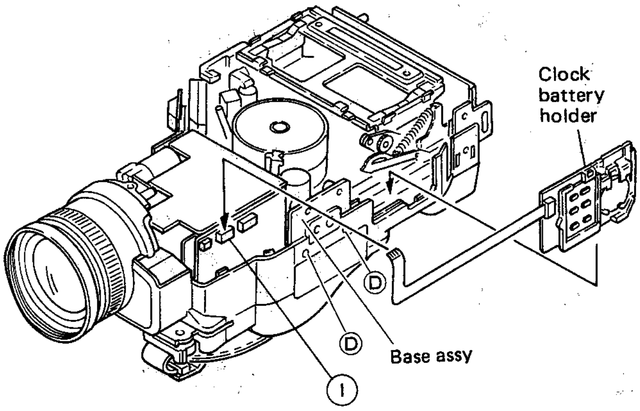


Fig. 1-5-6 Clock battery holder

Note: *Following the above work, disassemble the camera section and the deck section from each other. For this procedure, it is recommended to remove two screws Ⓓ and the base assy first in order to do the work with ease.*

1.5.7 Lower case assy

1. Remove two screws Ⓑ and a screw Ⓜ.

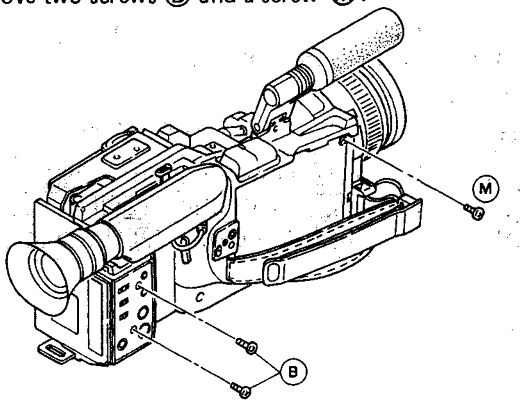


Fig. 1-5-7(A) Lower case assy - 1

2. Remove three screws Ⓔ.
3. Disconnect the connectors ①, ②, ③, ④ and ⑤ to detach the lower case assy.

Con-nector	No. of pins	Connection
①	3	Battery ↔ $\boxed{0}\boxed{3}$ JACK CN4
②	5	$\boxed{0}\boxed{2}$ A/V CN7 ↔ $\boxed{0}\boxed{6}$ MIC AMP CN1
③	5	$\boxed{2}\boxed{5}$ AF CN503 ↔ Zoom switch
④	2	$\boxed{2}\boxed{3}$ CTL CN309 ↔ $\boxed{0}\boxed{5}$ MIC JACK CN1
⑤	3	$\boxed{2}\boxed{1}$ VIDEO CN106 ↔ E. VF

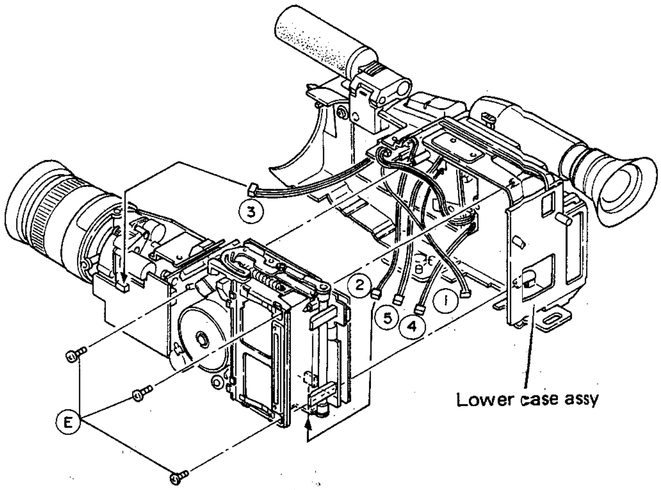


Fig. 1-5-7(B) Lower case assy - 2

Note: *To install the MIC AMP board to the lower case, refer to Fig. 1-5-7(C).*

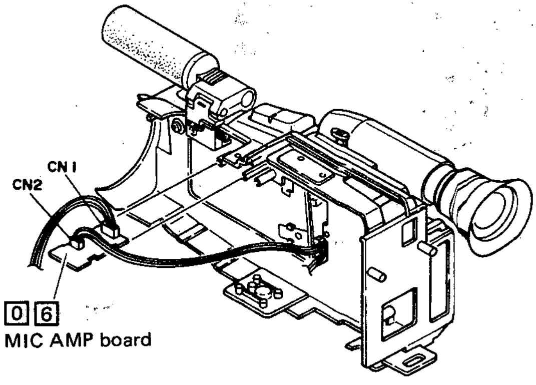


Fig. 1-5-7(C) Installing MIC AMP board

1.5.8 Separation of camera section and deck section

1. Disconnect the connectors ①, ② and ③ to separate the camera section from the deck section.

Connector	No. of pins	Connection
①	3	22 IMAGER CN201 ↔ 03 JACK CN2
②	8	01 MAIN CN8 ⇔ 23 CTL CN305
③	8	02 A/V CN6 ⇔ 21 VIDEO CN107

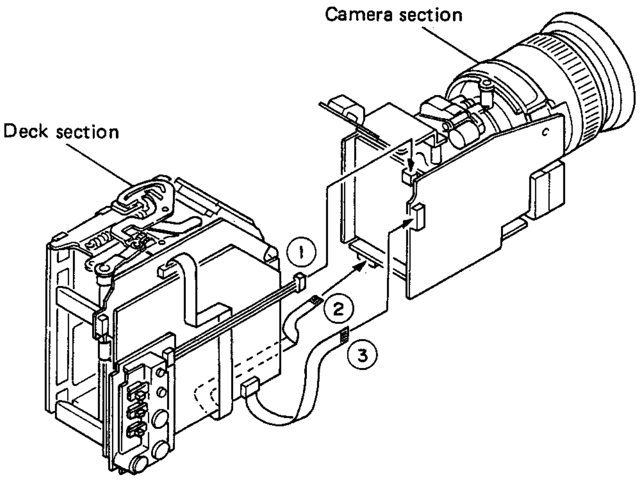

Camera section
Deck section
①
②
③

Fig. 1-5-8 Separation of camera section and deck section

1.5.9 Setup for troubleshooting and check of camera section

Set up the camera section and test instruments by connecting patch cords as shown in Fig. 1-5-9.

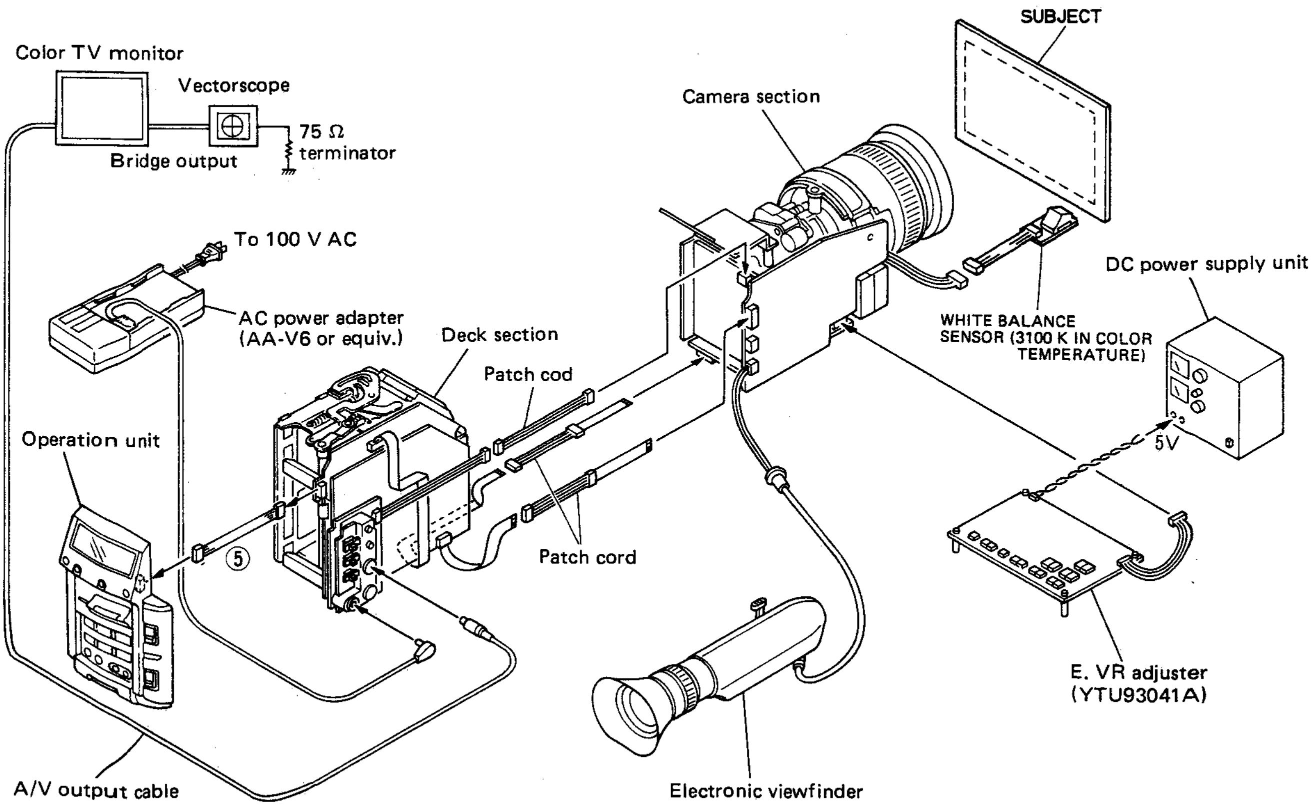

SUBJECT
Color TV monitor
Vectorscope
Camera section
75 Ω terminator
Bridge output
To 100 V AC
DC power supply unit
AC power adapter (AA-V6 or equiv.)
Deck section
WHITE BALANCE SENSOR (3100 K IN COLOR TEMPERATURE)
Patch cod
Operation unit
5V
⑤
Patch cord
E. VR adjuster (YTU93041A)
A/V output cable
Electronic viewfinder

Fig. 1-5-9 Setup for camera section

1.5.10 Electronic viewfinder

1. Pushing the section ⓐ, slide the electronic viewfinder in the direction of the arrow mark ⓑ.

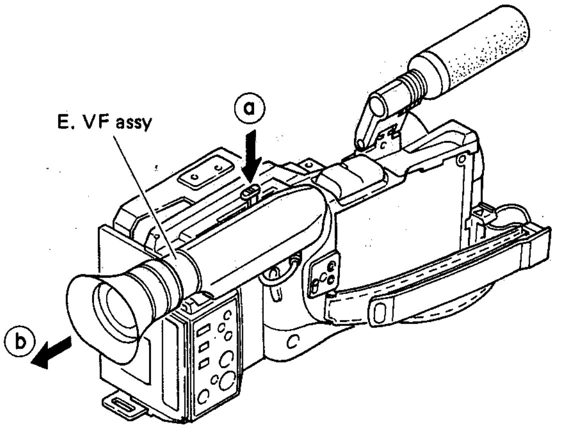


Fig. 1-5-10(A) Electronic viewfinder - 1

2. Remove three screws Ⓑ.
3. Disconnect the connector ① to detach the battery base assy.

Connector	No. of pins	Connection
①	4	$\boxed{0}\boxed{5}$ MIC JACK ↔ Mic.

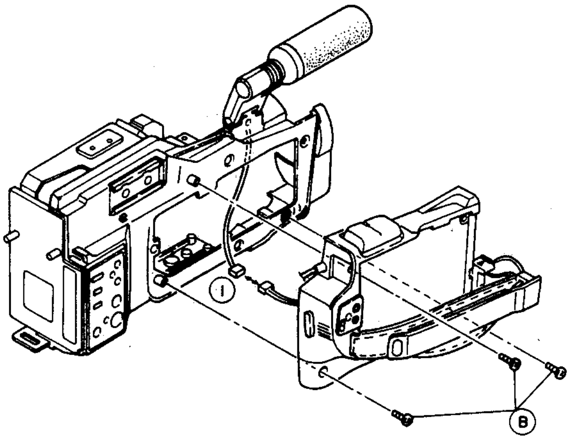


Fig. 1-5-10(B) Electronic viewfinder - 2

- **How to remove electronic viewfinder individually**

1. Remove three screws Ⓑ and a screw Ⓜ to detach the battery base assy. (Since the battery base assy and the main body are combined together with by the connector, do not separate them completely but do it slightly as they are connected.)
2. Disconnect the connector ① to detach the electronic viewfinder.

Connector	No. of pins	Connection
①	3	E. VF ↔ $\boxed{2}\boxed{1}$ VIDEO CN106

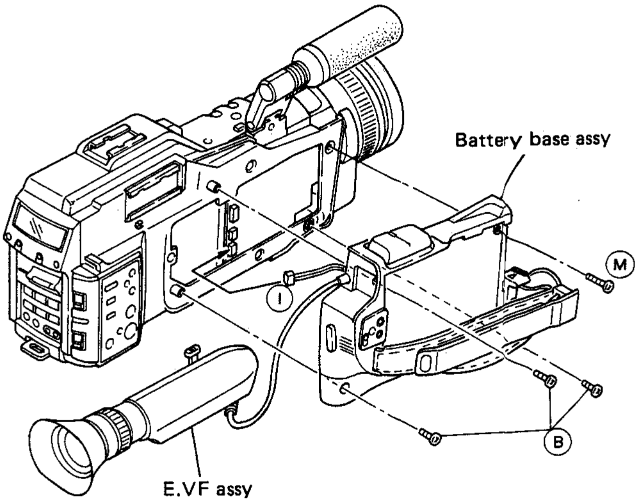


Fig. 1-5-10(C) Electronc viewfinder - 3

1.5.11 Microphone assy

1. Remove two screws Ⓠ to detach the microphone assy.

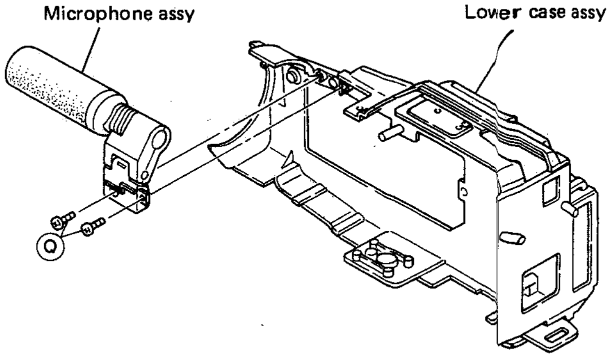


Fig. 1-5-11 Microphone assy

1.5.12 VIDEO, AW and CTL boards

1. Disconnect the connectors ①, ② and ③ to detach the VIDEO, AW and CTL boards.

Connector	No. of pins	Connection
①	12	$\boxed{2}\boxed{1}$ VIDEO CN101 ⬌ $\boxed{2}\boxed{2}$ IMAGER CN204
②	22	$\boxed{2}\boxed{1}$ VIDEO CN102 ⬌ $\boxed{2}\boxed{2}$ IMAGER CN205
③	8	$\boxed{2}\boxed{3}$ CTL CN303 ⬌ $\boxed{2}\boxed{5}$ AF CN502

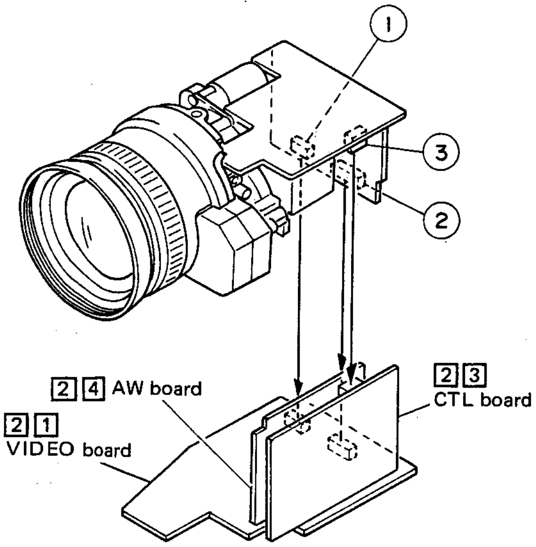

①
③
②
$\boxed{2}\boxed{4}$ AW board
$\boxed{2}\boxed{1}$ VIDEO board
$\boxed{2}\boxed{3}$ CTL board

Fig. 1-5-12(A) VIDEO, AW and CTL board - 1

2. Disconnect the connectors ①, ② and ③ to detach the AW and CTL boards from the VIDEO board.

Connector	No. of pins	Connection
①	22	$\boxed{2}\boxed{1}$ VIDEO CN103 ⬌ $\boxed{2}\boxed{4}$ AW CN402
②	22	$\boxed{2}\boxed{1}$ VIDEO CN104 ⬌ $\boxed{2}\boxed{3}$ CTL CN301
③	12	$\boxed{2}\boxed{1}$ VIDEO CN105 ⬌ $\boxed{2}\boxed{3}$ CTL CN302

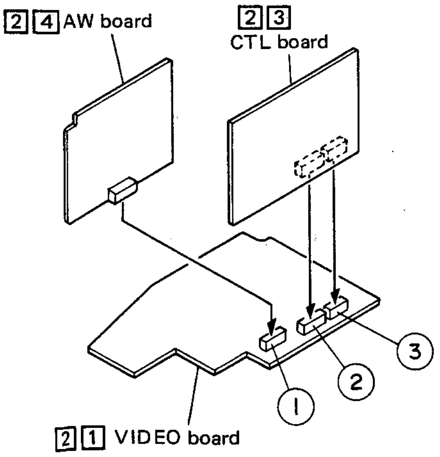

$\boxed{2}\boxed{4}$ AW board
$\boxed{2}\boxed{3}$ CTL board
③
②
①
$\boxed{2}\boxed{1}$ VIDEO board

Fig. 1-5-12(B) VIDEO, AW and CTL board - 2

1.5.13 AF board

1. Disconnect the connectors ①, ②, ③, ④, ⑤, ⑥ and ⑦ to detach the AF board.

Connector	No. of pins	Connection
①	16	$\boxed{2}\boxed{5}$ AF CN501 ⬌ $\boxed{2}\boxed{2}$ IMAGER CN203
②	4	$\boxed{2}\boxed{5}$ AF CN509 ↔ Infinite sensor
③	8	$\boxed{2}\boxed{5}$ AF CN504 ↔ Iris
④	4	$\boxed{2}\boxed{5}$ AF CN508 ↔ Manual sensor
⑤	3	$\boxed{2}\boxed{5}$ AF CN507 ↔ Zoom encoder
⑥	2	$\boxed{2}\boxed{5}$ AF CN506 ↔ Zoom motor
⑦	4	$\boxed{2}\boxed{5}$ AF CN505 ↔ Focus motor

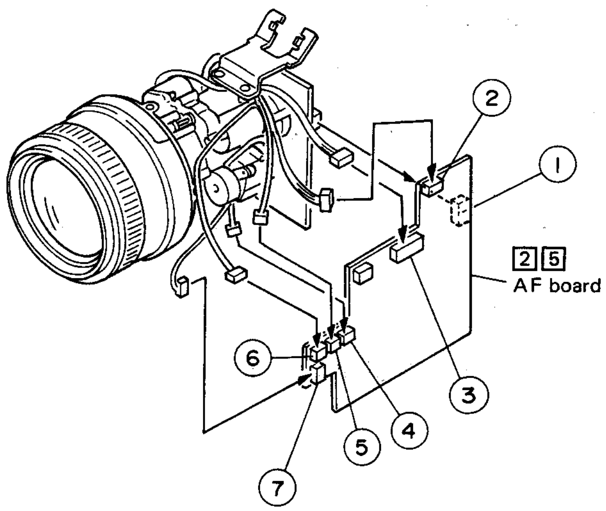

②
①
$\boxed{2}\boxed{5}$ AF board
⑥
③
④
⑤
⑦

Fig. 1-5-13 AF board

1.5.14 Replacement of image sensor

Connector	No. of pins	Connection
①	10	$\boxed{2}\boxed{2}$ IMAGER CN202 ↔ DC/DC converter

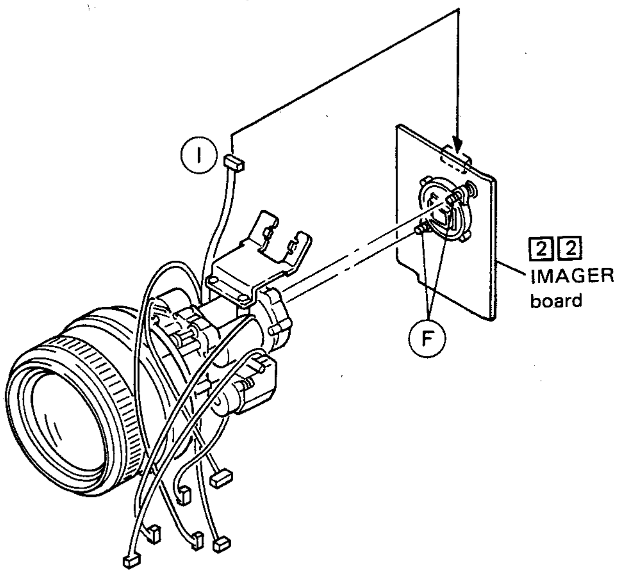

①
$\boxed{2}\boxed{2}$ IMAGER board
F

Fig. 1-5-14(A) Removing of image sensor - 1

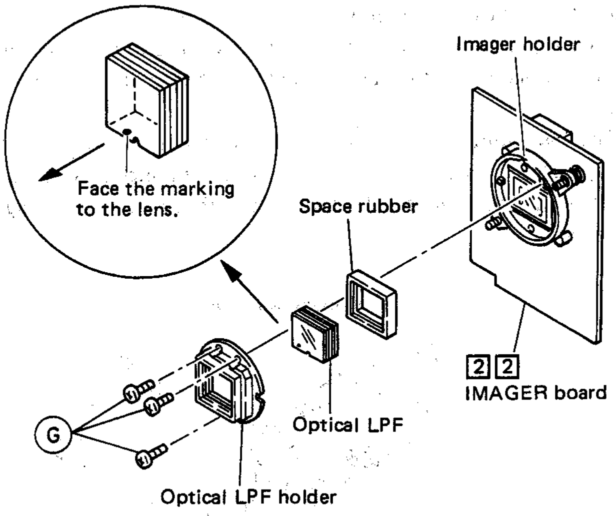


Fig. 1-5-14(B) Removing of image sensor - 2

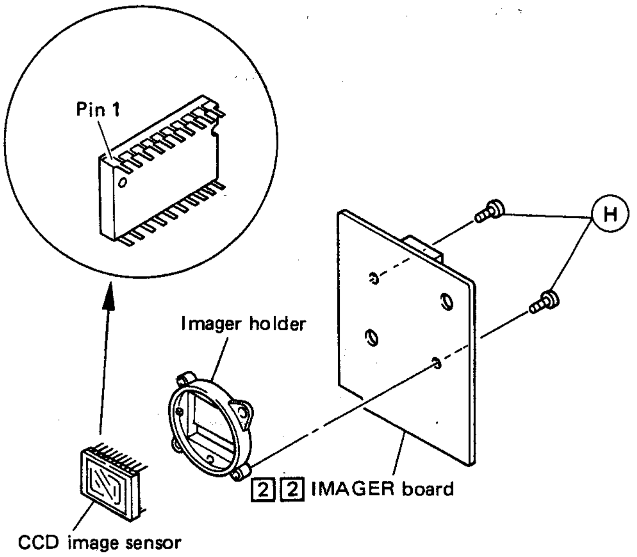


Fig. 1-5-14(C) Removing of image sensor - 3

1. Disassembly of image sensor from optical block

1) Remove two screws Ⓕ. (Refer to Fig. 1-5-14(A).)
2) Disconnect the connector Ⓘ to detach the IMAGER board. (Refer to Fig. 1-5-14(A).)
3) Remove three screws Ⓖ and separate the optical filter holder, optical filter and spacer rubber. (Refer to Fig. 1-5-14(B).)
4) Unsolder the CCD image sensor and remove two screws Ⓗ, then take off the CCD image sensor. (Refer to Fig. 1-5-14(C).)

2. Installing a new image sensor

1) After removing the protection seal from a new CCD image sensor, install it on the IMAGER board.
   At that time, make sure to set it so that the marking on the side of pin 1 is positioned on the right upper as viewed in the Fig. 1-5-14(C).
2) After the CCD image sensor is set on the IMAGER board, secure it by soldering. Be careful not to apply excessive heat to the sensor or the board.
3) Next, set the spacer rubber, optical filter (to face the marking to the lens), optical filter holder one after another and secure them with three screws Ⓖ.
4) Install the IMAGER board together with the imager holder to the optical block, and temporarily fix it with screws Ⓕ lightly so it can be moved.
5) Install the AF, AW, CTL and VIDEO boards. Picking up an object (test pattern) in the macrofocus, adjust setting position of the IMAGER board so that no vignetting is observed at any corner of the image. Next, make sure of horizontality of the image by eyes. If it is confirmed that the image is kept nearly horizontally by fine adjustment, tighten two screws Ⓕ.
6) After all of the above works for the replacement, perform checkup and adjustment of the following.
   3.2 No. 3 V. SUB adjustment
   3.2 No. 4 Reset bias adjustment
   3.4 Auto focus adjustment

1.5.15 CRT for electronic viewfinder

For disassembling the electronic viewfinder, refer to the exploded view diagram of the electronic viewfinder [M5].

1. Connection of CRT connector
Connect the CRT connector by fitting its notch to the CRT's marking.

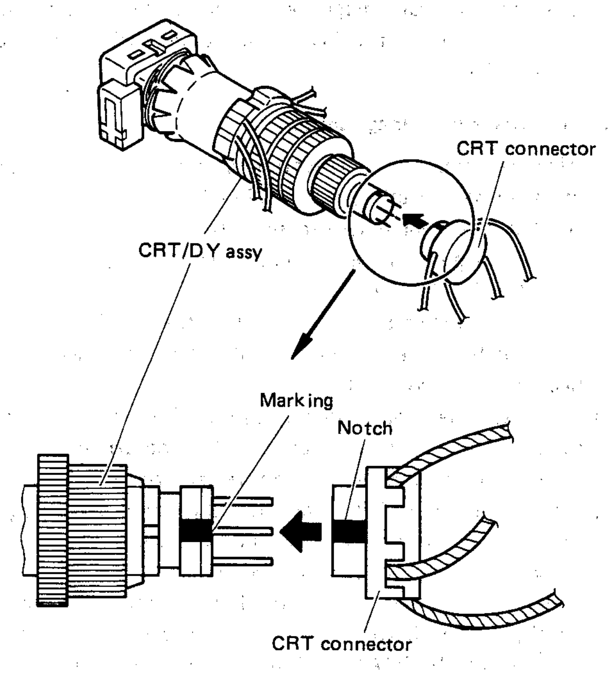

CRT connector
CRT/DY assy
Marking
Notch
CRT connector

Fig. 1-5-15(A)

2. Connection with high voltage connector
Securely perform the connection since the connector and the connected section are loaded with high voltage in operation.
The high voltage cover is an important piece to shut out the high voltage section from other parts, therefore, used one must be discarded and be replaced with a new high voltage cover.

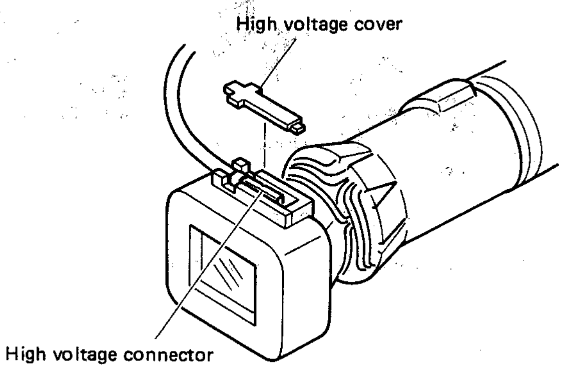

High voltage cover
High voltage connector

Fig. 1-5-15(B)

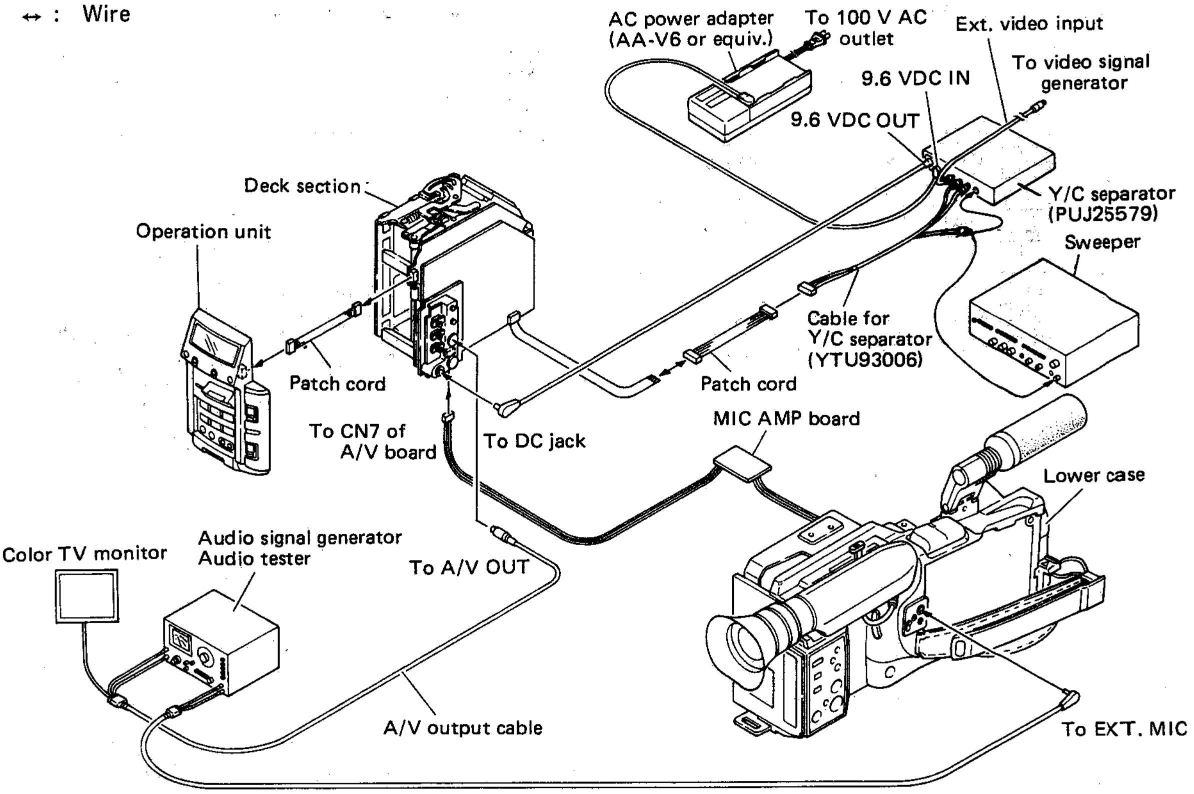
1.6 DISASSEMBLY OF DECK SECTION

Note: *Three kinds of double-arrows in connection tables respectively indicate kinds of connectors/wires.*

⬌ : Board-to-Board connector
⇔ : Flat wire
↔ : Wire

1.6.1 Setup for troubleshooting and check of deck section

Separate the deck section from the camera section according to Section 1.5.8, set up the deck section and test instruments as shown in the figure for the purpose of checkup and adjustment of the deck section.



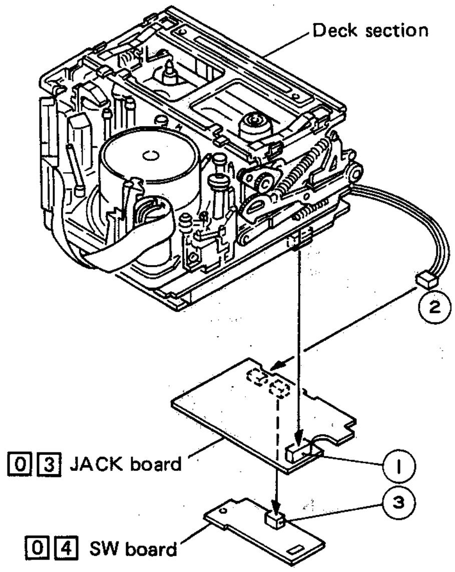
AC power adapter (AA-V6 or equiv.)
To 100 V AC outlet
Ext. video input
To video signal generator
9.6 VDC IN
9.6 VDC OUT
Deck section
Operation unit
Y/C separator (PUJ25579)
Sweeper
Cable for Y/C separator (YTU93006)
Patch cord
Patch cord
To CN7 of A/V board
To DC jack
MIC AMP board
Lower case
Color TV monitor
Audio signal generator
Audio tester
To A/V OUT
A/V output cable
To EXT. MIC

Fig. 1-6-1 Setup of deck section

1.6.2 JACK and SW boards

1. Disconnect the connectors ① and ② to detach the JACK board.
2. Disconnect the connector ③ to detach the SW board.

Connector	No. of pins	Connection
①	22	03 JACK CN1 ⬌ 02 A/V CN4
②	4	03 JACK CN3 ↔ 01 MAIN CN15
③	6	04 SW CN11 ⬌ 03 JACK CN5



Deck section
②
03 JACK board
①
③
04 SW board

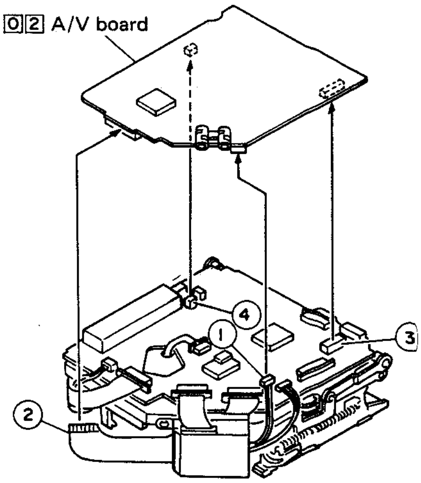
Fig. 1-6-2 JACK and SW boards

1.6.3 A/V board

1. Disconnect the connectors ①, ②, ③ and ④ to detach the A/V board.

Note: *Disconnect the connector ④ with meticulous care since it is very weak in the soldered part.*

Connector	No. of pins	Connection
①	5	02 A/V CN2 ↔ A/C head
②	16	02 A/V CN1 ⇔ Pre-rec amp.
③	30	02 A/V CN3 ⬌ 01 MAIN CN9
④	6	02 A/V CN5 ⬌ 01 MAIN CN14



02 A/V board
④
①
③
②

Fig. 1-6-3 A/V board

1.6.4 MAIN board

1. Remove a screw Ⓙ and a screw Ⓚ.
2. Disconnect the connectors ①, ②, ③, ④, ⑤, ⑥, ⑦ and ⑧ to detach the MAIN board.

Con-nector	No. of pins	Connection
①	3	01 MAIN CN4 ↔ Mode control motor
②	15	01 MAIN CN3 ⇔ Drum motor
③	13	01 MAIN CN2 ⇔ Pre-rec amp.
④	15	01 MAIN CN1 ⇔ Capstan motor
⑤	6	01 MAIN CN11 ↔ CTL head
⑥	8	01 MAIN CN7 ⇔ Sensor
⑦	3	01 MAIN CN6 ↔ End sensor
⑧	3	01 MAIN CN12 ⇔ F.E. head

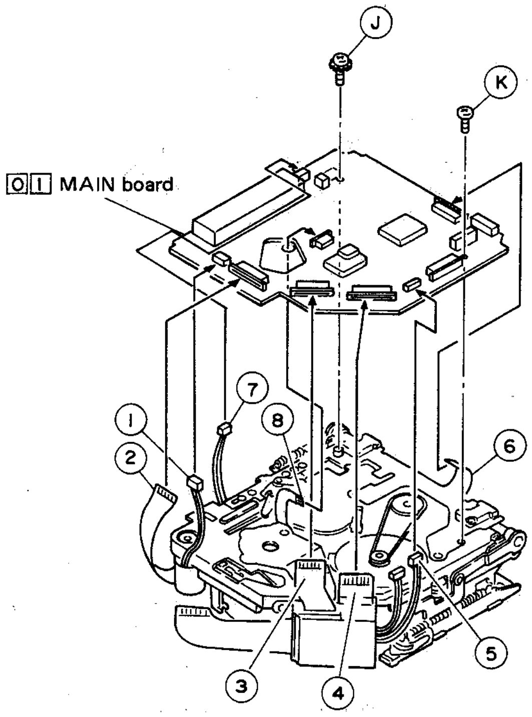


Fig. 1-6-4 MAIN board

1.6.5 PRE REC AMP board

1. Remove a screw Ⓚ.
2. Disconnect the connector ① and disengage pawls to detach the PRE REC AMP board.

Con-nector	No. of pins	Connection
①	16	PRE REC amp. ⇔ Upper drum

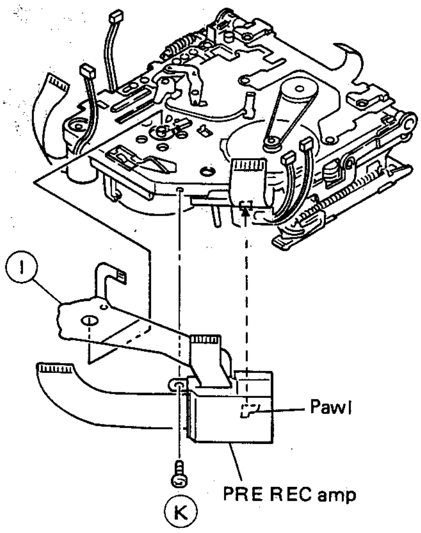


Fig. 1-6-5 PRE REC AMP board

1.6.6 SENSOR board

1. Remove four screws Ⓚ.
2. Disconnect the connector ① to detach the SENSOR board.

Con-nector	No. of pins	Connection
①	3	Sensor ↔ CAM SW

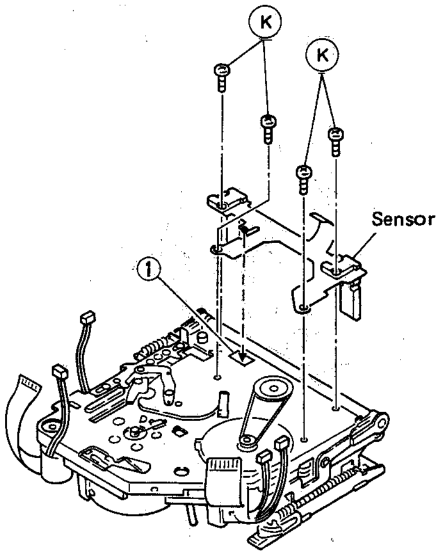


Fig. 1-6-6 SENSOR board

1.6.7 Cassette housing

1. Move the lock plate as indicated by the arrow ⓐ to hold the cassette housing lifted up.
2. Remove two screws Ⓚ.
3. Open the both arms of the cassette housing in the direction of the arrow ⓑ and detach it from the guide rail of the main deck.

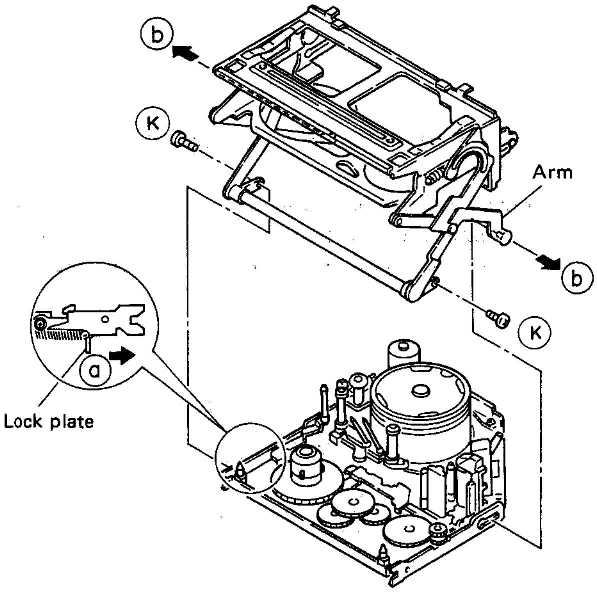

ⓑ
Ⓚ
Arm
ⓑ
Ⓚ
ⓐ
Lock plate

Fig. 1-6-7 Cassette housing

1.6.8 To take tape out of the cassette

Disconnect the set from the power first, and take off the external covers according to sections 1.5.1 to 1.5.6 to research the cause of the trouble and the place where it occurs.

1. Tape trouble before/without loading
1) Move the lock plate as indicated by the arrow ⓐ and lift the cassette housing upward by hand.

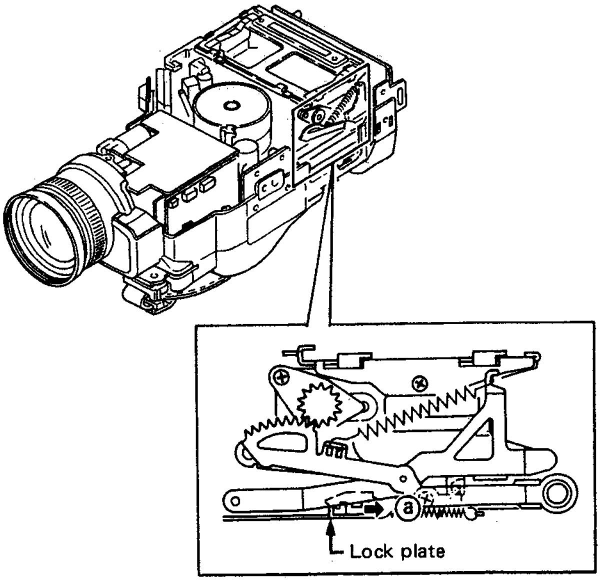


Fig. 1-6-8 (A) To take tape out of cassette - 1

2. Tape trouble in/after full-loading operation
1) Remove the wires of the mode control motor as shown in the magnified illustration Ⓐ, and connect jumping wires to the respective ends of them.
   Note: *This connection is for protection of the mechacon CPU.*
2) Holding the cassette housing by hand, connect the jumping wires to a UM3 ("AA") battery and make the mechanism perform the unloading operation unit it comes in the eject mode.
   Note: *If the mechanism comes into the unloading mode without holding down the cassette, it results in tape damage.*
3) In this condition, turn the take-up gear with a screwdriver, etc. in the direction of the arrow ⓐ as shown in the magnified illustration Ⓑ to take up the tape. After confirming whether the tape is damaged or not, stop pressing the cassette housing by hand.

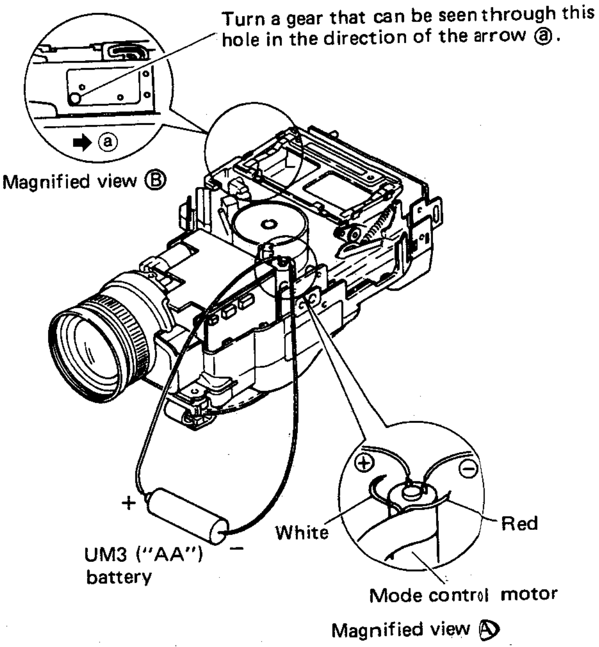

Turn a gear that can be seen through this hole in the direction of the arrow ⓐ.
ⓐ
Magnified view Ⓑ
+
−
White
Red
UM3 ("AA") battery
Mode control motor
Magnified view Ⓐ

Fig. 1-6-8 (B) To take tape ouf of cassette - 2

1.6.9 Upper drum replacement

Note: Be very careful not to touch any head of a new upper drum as well as not to damage the drum.

1. Unsolder at 18 points (shown by arrows in the figure) near the center of the upper drum board.

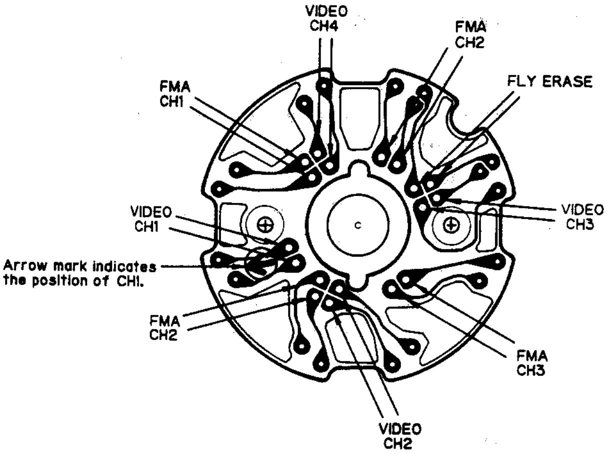

VIDEO CH4
FMA CH2
FLY ERASE
FMA CH1
VIDEO CH1
VIDEO CH3
Arrow mark indicates the position of CH1.
FMA CH2
FMA CH3
VIDEO CH2

Fig. 1-6-9(A) Upper drum replacement (1)

2. Remove two screws.

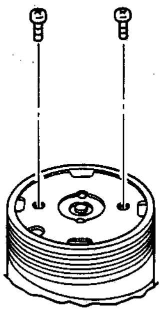


Fig. 1-6-9(B) Upper drum replacement (2)

3. For removing the upper drum, set the upper drum removal tool (YTU94031A) with two screws which were once removed in the above step 2, and tighten the center screw to detach the upper drum.

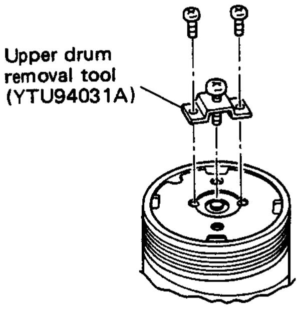

Upper drum removal tool (YTU94031A)

Fig. 1-6-9(C) Upper drum replacement (3)

4. Before installing a new upper drum, insert a soldering iron into the hole of the upper drum and heat it for about 3 to 5 minutes to expand it.

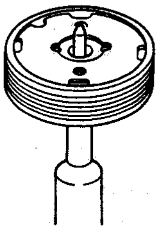


Fig. 1-6-9(D) Upper drum replacement (4)

5. For assembling the new upper drum and the lower drum, set the upper drum so that its hole A and the hole B of the lower drum are positioned at the opposite angle (180°).

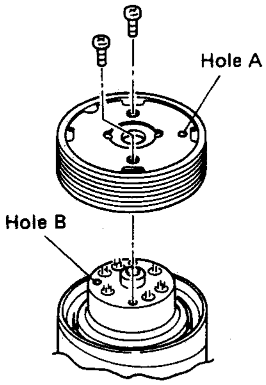

Hole A
Hole B

Fig. 1-6-9(E) Upper drum replacement (5)

6. Temporarily fix the upper drum with the two screws first, and after the upper drum gets cold, thenalternately tighten the screws little by little.
7. After the replacement finishes, proceed to the adjustment and checkup of the following sections.
   § 2.2 SERVO & INTERCHANGEABILITY
   § 2.3 Y (LUMINANCE) CIRCUIT
   § 2.4 COLOR SIGNAL CIRCUIT
   § 2.5 AUDIO CIRCUIT

1.6.10 Checkup and adjustment of mechanism phase

1. Middle pole cam gear, control cam gear

1) Position the middle pole cam gear so that its hole and the hole of the main deck coincide with each other.

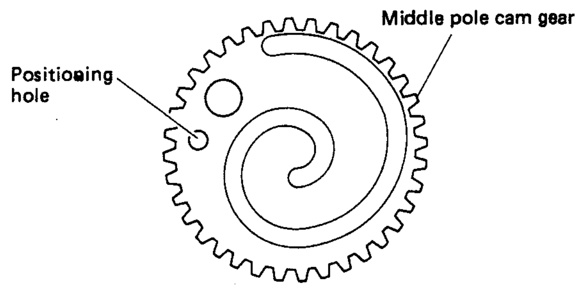


Fig. 1-6-10(A) Middle pole cam gear

2) Position the control cam gear so that its hole and the hole of the main deck coincide with each other. At the same time, confirm that the holes of the back of the main deck and of the link coincide with each other, too.

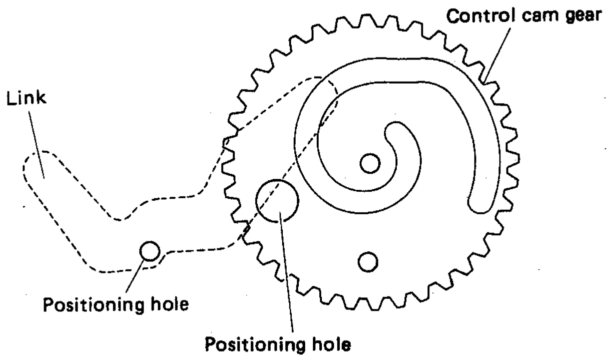


Fig. 1-6-10(B) Control cam gear

2. Encoder gear (1)

Engage the encoder gear (1) with the control cam gear so that the marking of the encoder cam gear (1) is positioned in the line between the both axes of the encoder gear (1) and the control cam gear.

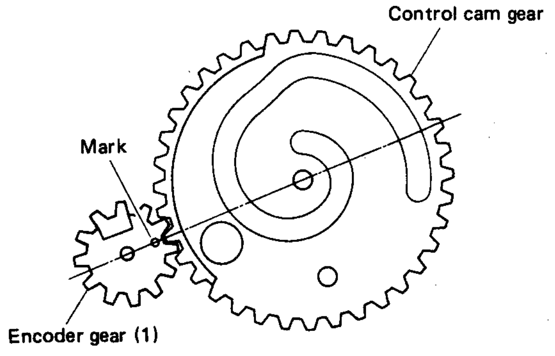


Fig. 1-6-10(C) Encoder gear (1)

3. Loading ring assy, supply middle gear

Engage the supply middle gear with the loading ring assy so that two teeth of the supply middle gear and the internal first two teeth of the loading ring assy are gearing with each other.

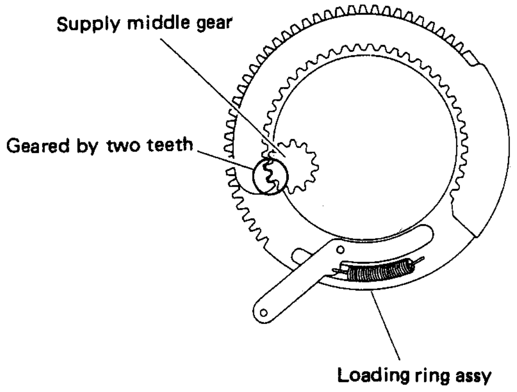


Fig. 1-6-10(D) Loading ring assy, supply middle gear

4. Supply ring gear

Engage the supply ring gear so that its hole coincide with that of the loading ring assy.

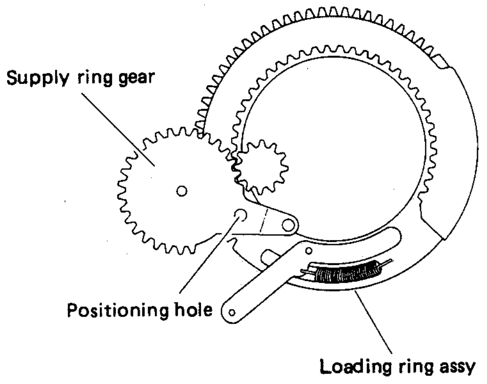


Fig. 1-6-10(E) Supply ring gear

5. Cam switch assy

Adjust the cam switch assy so that the irregularly toothed portion of the gear is positioned to coincide with the rectangle hole Ⓐ.

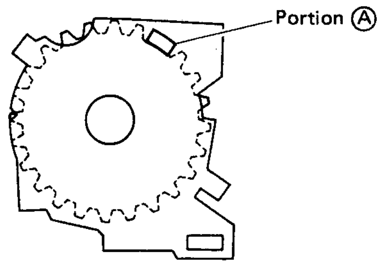


Fig. 1-6-10(F) Cam switch assy

1.7 INSPECTION AND MAINTENANCE

Since this model is equipped with rotary parts and other parts which may wear as time passes, it is important to clean the tape transport system and rotary parts as well as oiling and greasing rotary parts.

Besides such the maintenance, periodic replacement of worn and consumable parts is required.

Note: Encircled numeral(s) corresponds to the item number shown in Table 1-7-1.

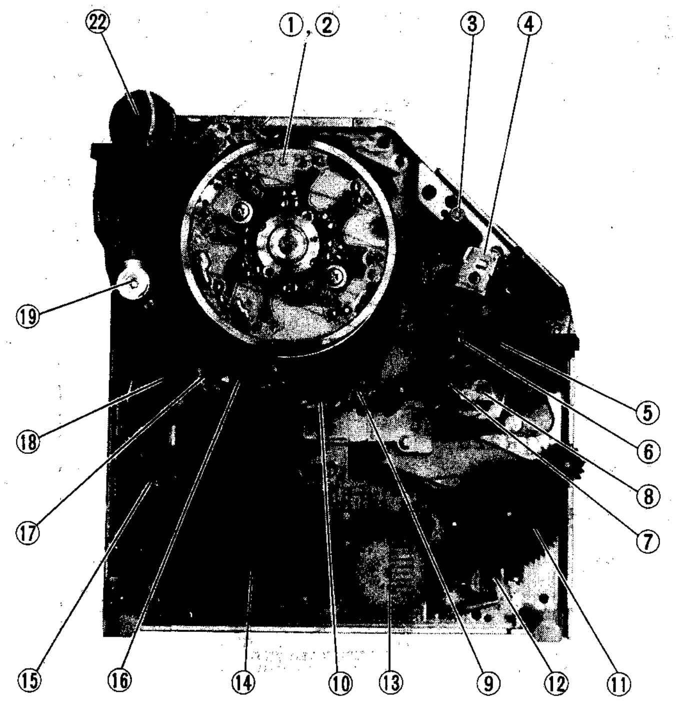


Fig. 1-7-1 Location of main mechanism parts (Top view)

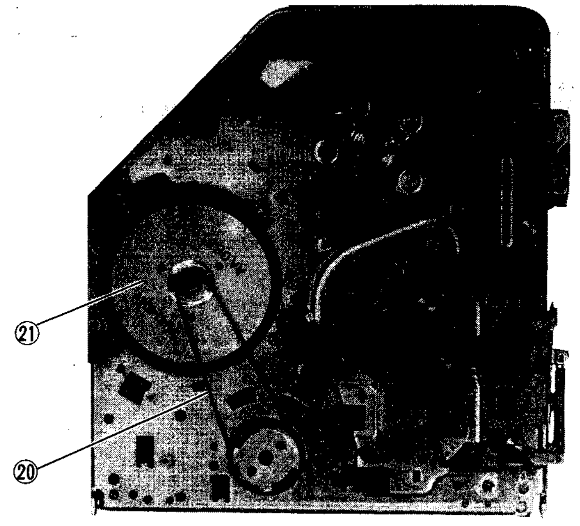


Fig. 1-7-2 Location of main mechanism parts (Bottom view)

1.7.1 Standard maintenance/inspection schedule of main components

Table 1-7-1 indicates the standard servicing period by component and kind of servicing. In practice, however, the indicated periods will widely vary according to environmental and using conditions. Nunfulfilment of the maintenance work not only shortens the standard period sharply but also influences other components badly.

Also be aware that rubber parts may possibly deform and age as time passes even when the set is not used.

1.7.2 Remarks

1. Cleaning

1) For cleaning of the upper drum (particularly video heads), use fine-woven cotton cloth or Kimwipe which alcohol soaks through. Regarding cleaning manner, do not move the cloth but turn the upper drum counterclockwise.

Note: Make sure not to move the cloth in the vertical direction to the video head, since it causes damage of the video heads.

2) For cleaning of parts of the tape transport system except the upper drum, use fine-woven cotton cloth or cotton swab soaked alcohol.

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System	Symbol No.	Parts Name	Ass'y	Peri	
				250	500
Tape transport system	19	Impedance roller		★	★
	16	Supply slant pole	a		
	17	Supply guide roller	a		
	18	Tension pole	a		
	7	Middle pole	a		
	6	Take-up guide pole A	a		
	3	Take-up guide pole B	a		
	9	Take-up guide roller	a		
	10	Take-up slant pole	a		
	8	Capstan	a		
	2	Lower drum	a		
	1	Upper drum	a	★	★
	4	A/C head	a	★	★
	5	Pinch roller	a	★	★
Drive system	21	Capstan motor	a		
	20	Belt			
	22	Mode control motor			
	11	Take-up clutch	a	△	△
	14	Supply reel disk	a	△	△
	13	Center pulley	a		
	12	Search brake lever		★	☆
Other	15	Tension band	a		

★ : Cleaning

☆ : Cleaning (or Replacement if necessary)

△ : Lubrication

a : Will be provided as assembly parts for replacement

▲
●
C

Table 1-7-1 Maintenance s

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1.7 INSPECTION AND MAINTENANCE

Since this model is equipped with rotary parts and other parts which may wear as time passes, it is important to clean the tape transport system and rotary parts as well as oiling and greasing rotary parts.

Besides such the maintenance, periodic replacement of worn and consumable parts is required.

Note: Encircled numeral(s) corresponds to the item number shown in Table 1-7-1.

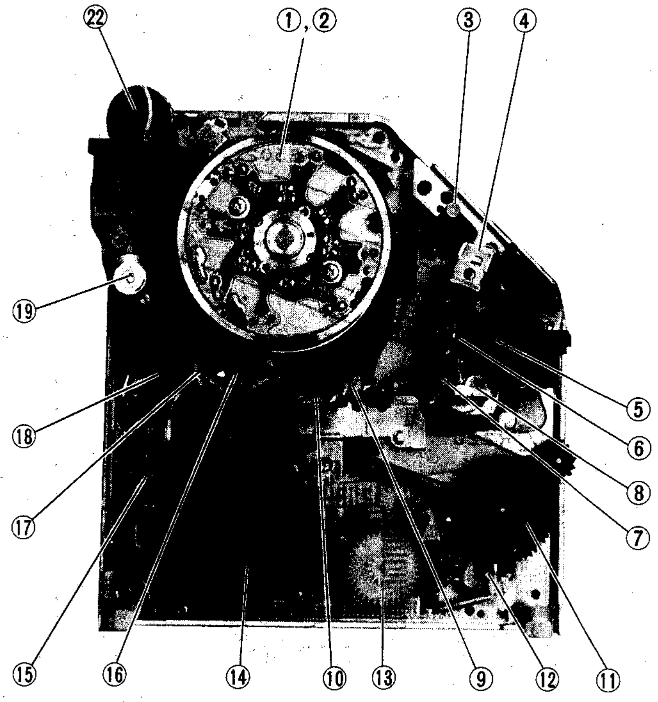


Fig. 1-7-1 Location of main mechanism parts (Top view)

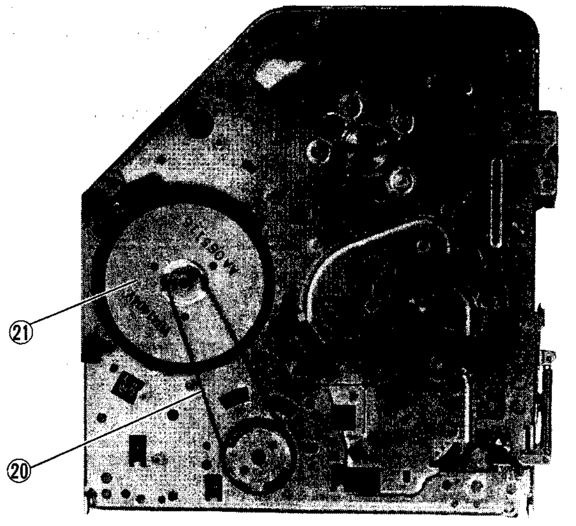


Fig. 1-7-2 Location of main mechanism parts (Bottom view)

1.7.1 Standard maintenance/inspection schedule of main components

Table 1-7-1 indicates the standard servicing period by component and kind of servicing. In practice, however, the indicated periods will widely vary according to environmental and using conditions. Nunfulfilment of the maintenance work not only shortens the standard period sharply but also influences other components badly.

Also be aware that rubber parts may possibly deform and age as time passes even when the set is not used.

1.7.2 Remarks

1. Cleaning

1) For cleaning of the upper drum (particularly video heads), use fine-woven cotton cloth or Kimwipe which alcohol soaks through. Regarding cleaning manner, do not move the cloth but turn the upper drum counterclockwise.
   Note: Make sure not to move the cloth in the vertical direction to the video head, since it causes damage of the video heads.
2) For cleaning of parts of the tape transport system except the upper drum, use fine-woven cotton cloth or cotton swab soaked alcohol.
3) After cleaning, confirm that the cleaned parts are completely dry before loading the deck with cassette tape.

2. Applying oil and grease

1) Periodical oiling and greasing are not required but should be done to new parts when replacing. If oil and grease on the parts of the other party are aged and dirty, wipe them and apply new oil or grease.
2) For parts and points to apply oil and grease, refer to the exploded view of the mechanism assembly (M3).
   Table 1-7-2 specifies oil and grease to be used.
3) When oiling, clean the objective parts with alcohol first and apply one or two drop(s) of oil. Too much oiling causes rotary parts to slip because of oil leakage.

Classification	Name	Part No.	Symbol in drawing
Grease	Moriton Grease No.1	MOS2-C	AA
Oil	Cosmo Hydro HV100	YTU94027	BB

Table 1-7-2 Specific oil and grease to be used

3. Checkup

After replacement of the supply reel disk and tension band, make sure to inspect and adjust back tension according to the adjustment procedure of the deck section.

System	Symbol No.	Parts Name	Ass'y	Periodic servicing schedule (operation hours)								
				250	500	750	1000	1250	1500	1750	2000	3000
Tape transport system	19	Impedance roller		★	★	★	★	★	★	★	★	★
	16	Supply slant pole	a									
	17	Supply guide roller	a									
	18	Tension pole	a									
	7	Middle pole	a									
	6	Take-up guide pole A	a									
	3	Take-up guide pole B	a									
	9	Take-up guide roller	a									
	10	Take-up slant pole	a									
	8	Capstan	a									
	2	Lower drum	a									
	1	Upper drum	a	★	★	☆	●	★	★	☆	●	●
	4	A/C head	a	★	★	★	★	★	★	★	★	●
	5	Pinch roller	a	★	★	★	★	★	★	★	★	●
Drive system	21	Capstan motor	a								●	
	20	Belt					○				●	○
	22	Mode control motor										●
	11	Take-up clutch	a	△	△	△	▲	△	△	△	▲	▲
	14	Supply reel disk	a	△	△	△	▲	△	△	△	▲	▲
	13	Center pulley	a				○				○	○
	12	Search brake lever		★	☆	★	☆	★	☆	★	☆	☆
Other	15	Tension band	a				○				○	○

★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
a : Will be provided as assembly parts for replacement

▲ : Lubrication (or Replacement if necessary)
● : Replacement
○ : Inspection or Replacement if required

Table 1-7-1 Maintenance schedule

4. Replacement

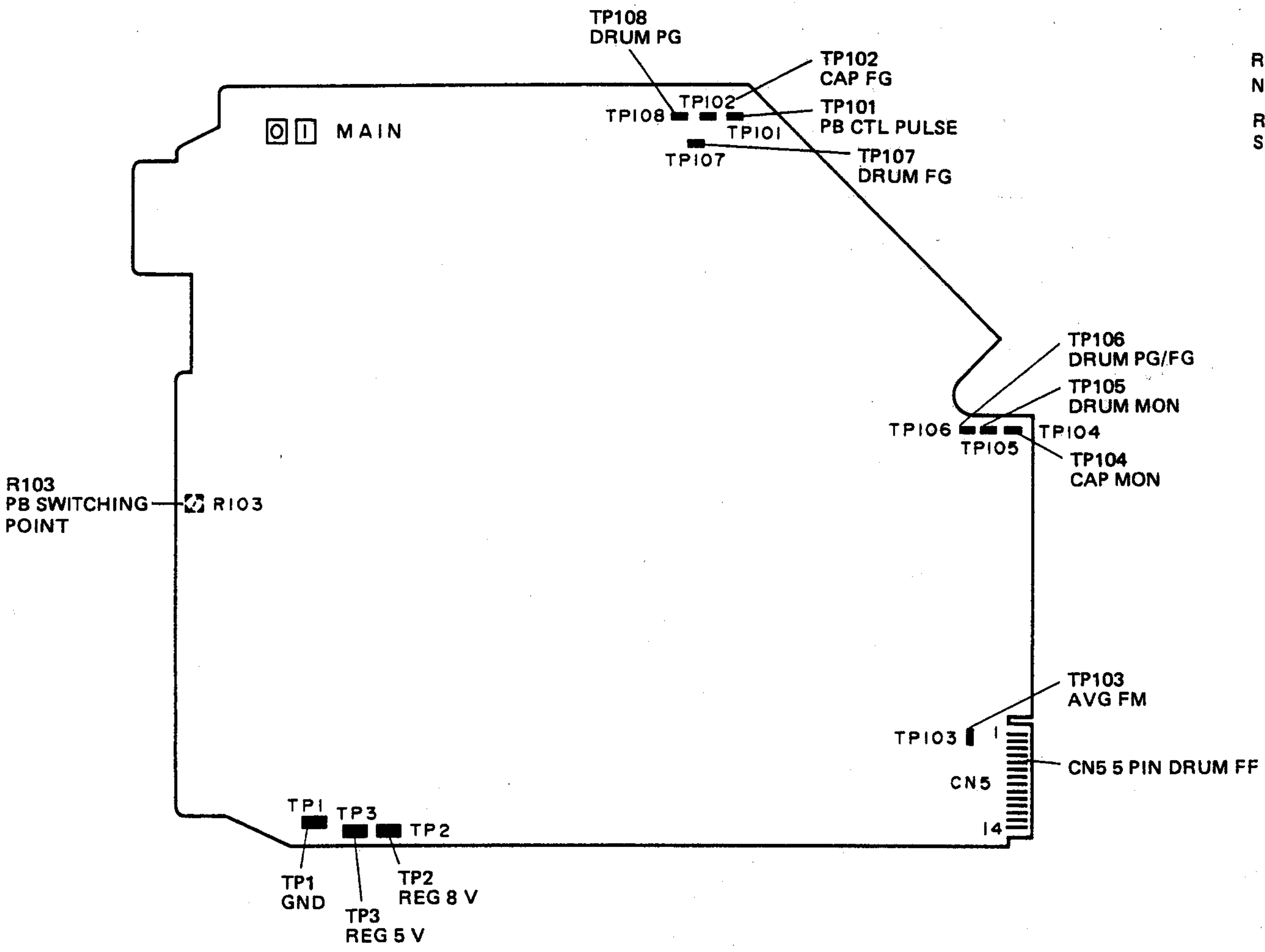
Replacement parts which are supplied as assembly parts are indicated by "a" in the "Ass'y" column of Table 1-7-1.

For respective parts numbers, refer to the parts list of the mechanism assembly.

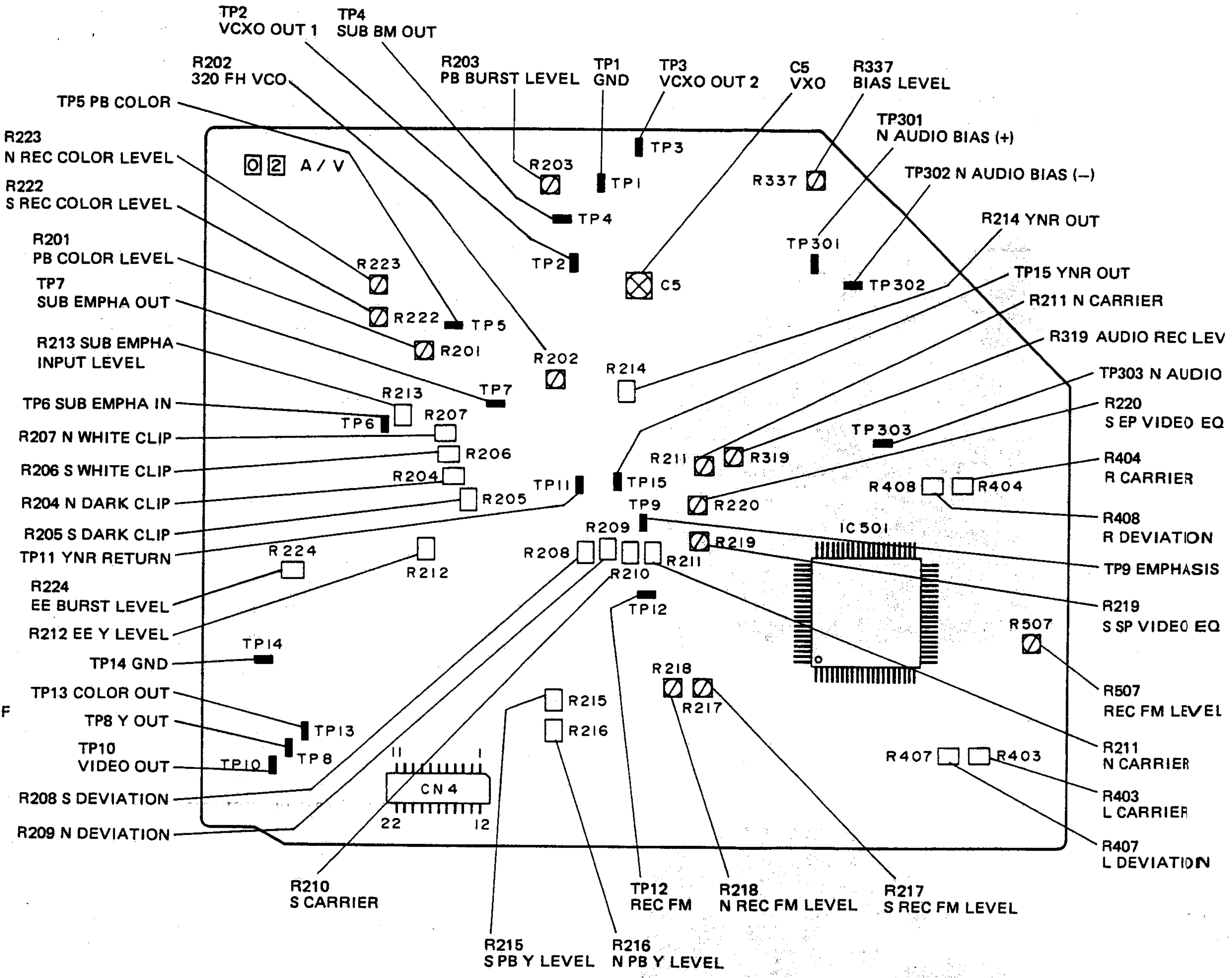
SECTION 2
DECK SECTION ADJUSTMENT

- **ADJUSTMENT ELEMENT LOCATION FOR DECK SECTION**

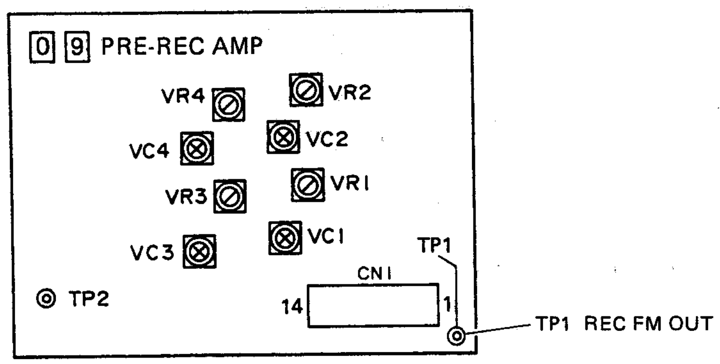
– MAIN board –


01 MAIN
TP108 DRUM PG
TP102 CAP FG
TP101 PB CTL PULSE
TP107 DRUM FG
TP108
TP102
TP101
TP107
TP106 DRUM PG/FG
TP105 DRUM MON
TP104 CAP MON
TP106
TP105
TP104
R103 PB SWITCHING POINT
R103
TP103 AVG FM
TP103
CN5
CN5 5 PIN DRUM FF
1
14
TP1
TP3
TP2
TP1 GND
TP3 REG 5 V
TP2 REG 8 V

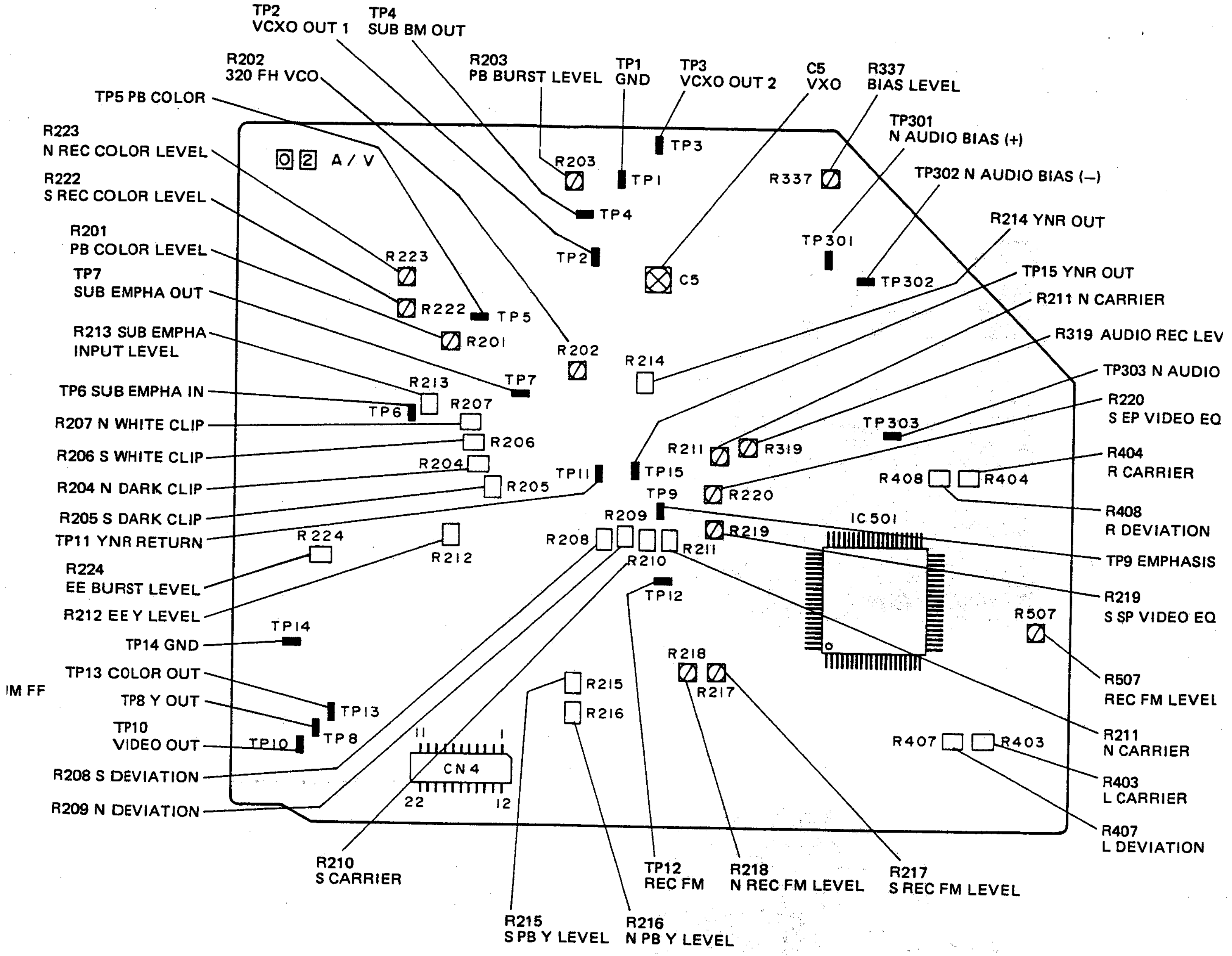
– A/V board –


02 A/V
TP2 VCXO OUT 1
TP4 SUB BM OUT
R202 320 FH VCO
R203 PB BURST LEVEL
TP1 GND
TP3 VCXO OUT 2
C5 VXO
R337 BIAS LEVEL
TP301 N AUDIO BIAS (+)
TP302 N AUDIO BIAS (–)
R214 YNR OUT
TP15 YNR OUT
R211 N CARRIER
R319 AUDIO REC LEV
TP303 N AUDIO
R220 S EP VIDEO EQ
R404 R CARRIER
R408 R DEVIATION
TP9 EMPHASIS
R219 S SP VIDEO EQ
R507 REC FM LEVEL
R211 N CARRIER
R403 L CARRIER
R407 L DEVIATION
TP5 PB COLOR
R223 N REC COLOR LEVEL
R222 S REC COLOR LEVEL
R201 PB COLOR LEVEL
TP7 SUB EMPHA OUT
R213 SUB EMPHA INPUT LEVEL
TP6 SUB EMPHA IN
R207 N WHITE CLIP
R206 S WHITE CLIP
R204 N DARK CLIP
R205 S DARK CLIP
TP11 YNR RETURN
R224 EE BURST LEVEL
R212 EE Y LEVEL
TP14 GND
TP13 COLOR OUT
TP8 Y OUT
TP10 VIDEO OUT
R208 S DEVIATION
R209 N DEVIATION
R210 S CARRIER
R215 S PB Y LEVEL
R216 N PB Y LEVEL
TP12 REC FM
R218 N REC FM LEVEL
R217 S REC FM LEVEL
R203
TP3
TP1
TP4
TP2
C5
R337
TP301
TP302
R223
R222
TP5
R201
R202
R214
TP7
R213
TP6
R207
R206
R204
R205
TP11
TP15
TP9
R211
R319
R220
TP303
R408
R404
IC501
R209
R208
R210
R211
R219
R224
R212
TP12
R507
TP14
R218
R217
R215
R216
TP13
TP8
TP10
CN4
11
1
22
12
R407
R403

– PRE-REC AMP –


09 PRE-REC AMP
VR4
VR2
VC4
VC2
VR3
VR1
VC3
VC1
TP1
TP2
CN1
14
1
TP1 REC FM OUT

– A/V board –


TP2
VCXO OUT 1
TP4
SUB BM OUT
R202
320 FH VCO
R203
PB BURST LEVEL
TP1
GND
TP3
VCXO OUT 2
C5
VXO
R337
BIAS LEVEL
TP5 PB COLOR
TP301
N AUDIO BIAS (+)
TP302 N AUDIO BIAS (–)
R223
N REC COLOR LEVEL
R222
S REC COLOR LEVEL
R214 YNR OUT
R201
PB COLOR LEVEL
TP15 YNR OUT
TP7
SUB EMPHA OUT
R211 N CARRIER
R213 SUB EMPHA
INPUT LEVEL
R319 AUDIO REC LEV
TP303 N AUDIO
TP6 SUB EMPHA IN
R220
S EP VIDEO EQ
R207 N WHITE CLIP
R206 S WHITE CLIP
R404
R CARRIER
R204 N DARK CLIP
R408
R DEVIATION
R205 S DARK CLIP
TP11 YNR RETURN
TP9 EMPHASIS
R224
EE BURST LEVEL
R219
S SP VIDEO EQ
R212 EE Y LEVEL
TP14 GND
R507
REC FM LEVEL
TP13 COLOR OUT
IM FF
TP8 Y OUT
R211
N CARRIER
TP10
VIDEO OUT
R403
L CARRIER
R208 S DEVIATION
R209 N DEVIATION
R407
L DEVIATION
R210
S CARRIER
TP12
REC FM
R218
N REC FM LEVEL
R217
S REC FM LEVEL
R215
S PB Y LEVEL
R216
N PB Y LEVEL
02 A/V
R203
TP3
TP1
R337
TP4
TP301
TP2
C5
TP302
R223
R222
TP5
R201
R202
R214
R213
TP7
TP6
R207
TP303
R206
R211
R319
R204
TP11
TP15
R408
R404
R205
TP9
R220
R209
IC501
R224
R208
R219
R211
R212
R210
TP12
R507
TP14
R218
R217
R215
TP13
R216
TP8
11
1
R407
R403
TP10
CN4
22
12

2.1 PREPARATION

2.1.1 Precautions

In most cases the deck section is in need of electrical adjustment, it results from replacement of worn mechanical parts or video heads.

In the event of malfunction with electrical circuits, troubleshooting with the aid of proper test instruments must be done first, and then commence necessary repair, replacement and adjustment, etc.

At field servicing without a complete range of test instruments, avoid unnecessary disturbance of the internal control settings. For satisfactory repair and adjustment, send back the unit to the factory or the nearest authorized service center.

If adjustment of the deck section is necessary, pay the most careful attention to the following.

1. When loading the deck with a VHS-C or an S-VHS-C cassette, make sure to remove the cassette door since it contacts with the drum as it is.
2. In case of wiring to chip test points for measurement and observation, use IC clips to avoid any stress.
3. For adjustment of the Y/C and AUDIO circuits equipped with trimming resistors, replace them with specified V. resistors beforehand.
   For operating the MAIN board as it is removed from the mechanism deck, shortcircuit pin 13 and pin 14 of CN5 of the MAIN board.

2.1.2 Standard connections

For electrical adjustment of the deck section, disassemble the deck section from the main body referring to section 1, "Service Cautions and Disassembly", and connect it with test instruments as shown in Fig. 2-1-1.

Connector	No. of Pin	Connection
①	16	$\boxed{0}\boxed{1}$ MAIN CN10 ↔ OPERATION UNIT
②	8	$\boxed{0}\boxed{2}$ A/V CN6 ↔ Y/C SEPARATOR

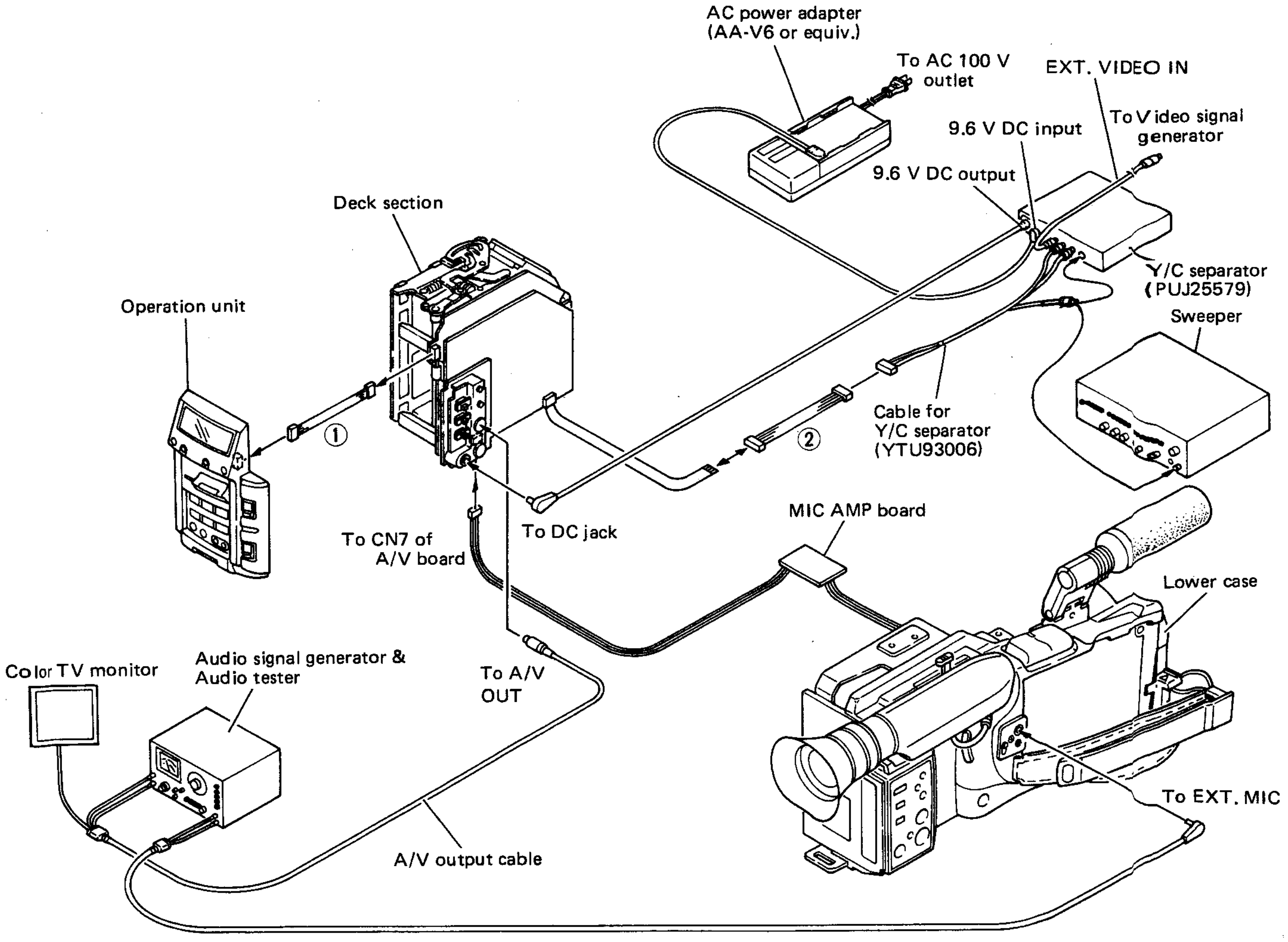
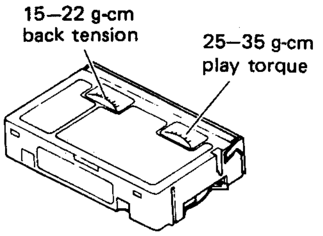

AC power adapter
(AA-V6 or equiv.)
To AC 100 V outlet
EXT. VIDEO IN
9.6 V DC input
To Video signal generator
9.6 V DC output
Deck section
Y/C separator
(PUJ25579)
Sweeper
Operation unit
①
②
Cable for
Y/C separator
(YTU93006)
MIC AMP board
To CN7 of
A/V board
To DC jack
Lower case
Color TV monitor
Audio signal generator &
Audio tester
To A/V
OUT
To EXT. MIC
A/V output cable

Fig. 2-1-1 Setup for inspection and adjustment of deck section

2.2 SERVO & INTERCHANGEABILITY

Note:
- *'Manual tracking' in the 'Mode' column is operated by simultaneously pressing of the tracking + and – buttons. To shift the mode to auto tracking, simultaneously press the tracking + and – buttons again.*
- *This adjustment must be performed after replacement of the upper drum ass'y or/and the lower drum ass'y.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Back tension	• REC	• Cassette torque meter  **Fig. 2-2-1** Cassette torque meter	• Cassette torque meter	–	1) Set a cassette torque meter onto the deck in the REC mode, and confirm that the back tension is within 15–22 g-cm. 2) If result of the step 1) is unsatisfactory, replace the tension band. 3) If there is a large difference in the values measured by the cassette torque meter, replace the supply reel disk.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
2	Tape pattern	•PB	•Manual tracking •Alignment tape EP stairstep (MHP-LC)	•CN5 pin 1 (VIDEO FM) •CN5 pin 5 (DRUM FF) (Ext.trigger) 01 MAIN	•SUP & TU guide roller	1) Observe waveform at pin 1 of CN5 with external trigger (–) from pin 5 of CN5. 2) Play the EP stairstep signal of the alignment tape and adjust the tracking control to maximize the FM waveform. 3) If the observed FM waveform is not flat, adjust the height of the supply or/and take-up guide rollers with a screwdriver (–) to get a flat waveform. **Note:** *Slowly turn the guide roller to prevent the tape from damage.* 4) While varying the Tracking CTL for maximum to minimum FM level, confirm FM waveform is always flat. If there is falling or rising portions, stop turning the Tracking CTL and perform fine adjustment of supply or take-up guide roller height so that waveform is as flat as possible. Repeat step 4) several times. 5) Set for stop mode and then for playback mode again, since the height of guide rollers may move during adjustment. Confirm, when varying the Tracking CTL, FM waveform variation is always flat.
			•Alignment tape SP stairstep (MHP-C or MH-C1) •REC/PB SP/EP			6) Play the SP stairstep signal of the alignment tape and repeat the step 4) to confirm that there is nothing abnormal. **Note:** *At the adjustment for EP and SP, give priority to the EP pattern adjustment.* 7) Record the signal and play it back both in the SP and EP modes, and confirm that the FM waveform is flat in the both modes. 8) Through the above steps, make sure of no wrinkling/damage in the tape around the impedance roller and take-up guide pole in Loading/Unloading, Search Rewind, and at mode change from Search Rewind to Playback. If tape wrinkling or damage occurs around the take-up guide pole, adjust the angle (slant) of the A/C head to the tape so that the tape normally runs along the lower flange of the guide pole.

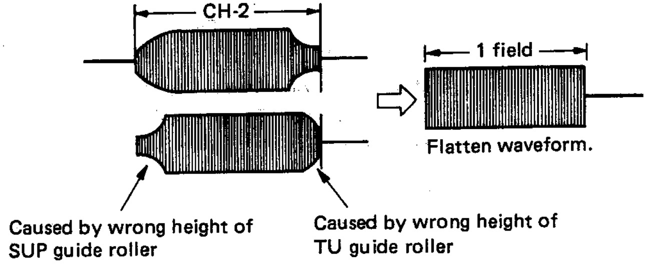

CH-2
1 field
Flatten waveform.
Caused by wrong height of SUP guide roller
Caused by wrong height of TU guide roller

Fig. 2-2-2 FM waveform

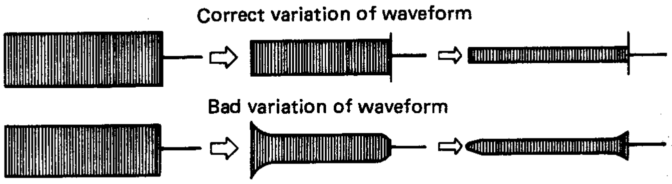

Correct variation of waveform
Bad variation of waveform

Fig. 2-2-3 FM waveform

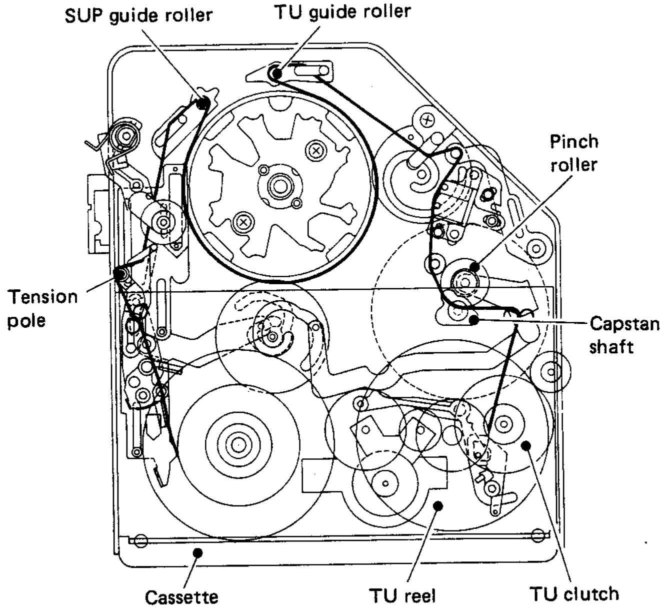

SUP guide roller
TU guide roller
Pinch roller
Tension pole
Capstan shaft
Cassette
TU reel
TU clutch

Fig. 2-2-4 Tape transport system

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
3	A/CTL head height & azimuth	•PB	•Alignment tape (Audio 7 kHz) (MHP-C or MH-C1)	•TP303 (N AUDIO OUT) $\boxed{0}\boxed{2}$ A/V	•A/C head	1) Play the stairstep signal (audio 7 kHz) of the alignment tape and observe the waveform at TP303. **Note:** *If the output level is about –6 dBs (1.1 V p-p), it is normal.* 2) If necessary, slightly and evenly turn the screws Ⓐ (reference), Ⓑ (slant to the front) and Ⓒ (azimuth) in the same direction (up to 45° each) to obtain the maximum output level. 3) For the adjustment, use the screw Ⓑ to decrease the waveform fluctuation in level while use the screw Ⓒ to obtain the maximum output level.

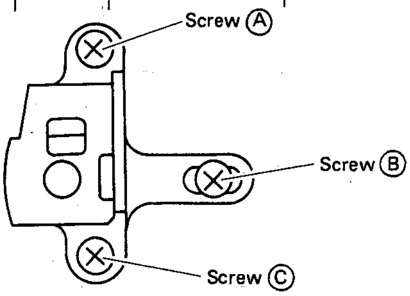


Fig. 2-2-5 A/C head

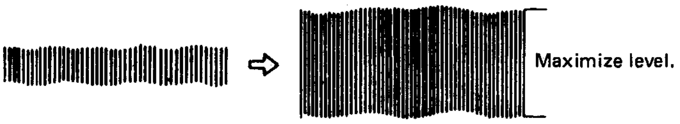
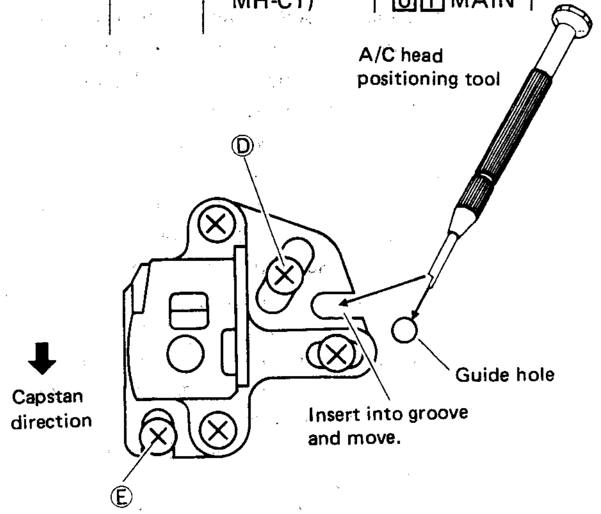


Fig. 2-2-6 Audio signal

<table>
<tr><th>No.</th><th>Item</th><th>Mode</th><th>Signal & Setting</th><th>Measurement Point</th><th>Adjustment Parts</th><th>Adjustment Procedure</th></tr>
<tr><td rowspan="2">4</td><td>Phase of CTL head (X value)</td><td>•PB</td><td>•Manual tracking
•Alignment tape SP stairstep (MHP-C or MH-C1)</td><td>•CN5 pin 1 (VIDEO FM)
•CN5 pin 5 (DRUM FF) (Ext.trigger) 01 MAIN</td><td>•Control head</td><td rowspan="2">1) Observe waveform at pin 1 of CN5 with external trigger (+) from pin 5 of CN5.
2) While varying the Tracking CTL, confirm the following matter. When the Tracking CTL is at center position, FM level should be maximum.
3) If item 2) is not satisfied, the adjustment must be performed. Slightly loosen screws Ⓓ and Ⓔ and set the tip of the A/C head positioning tool in the groove and guide hole respectively. At first, put the A/C head fully in the direction of the capstan and then, gradually turn the tool clockwise and find out the point "c".
4) Fasten screws Ⓓ and Ⓔ. Confirm step 2).
5) If possible, perform recording. Play that tape in the 4 heads deck VCR and make sure that interchangeability is normal.</td></tr>
<tr><td colspan="5">

A/C head positioning tool
Ⓓ
Capstan direction
Guide hole
Insert into groove and move.
Ⓔ

Fig. 2-2-7 CTL head phase

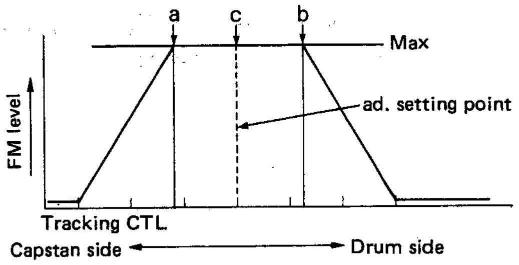
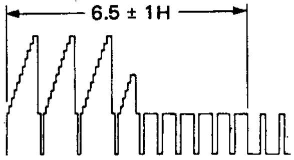



Fig. 2-2-8 CTL head phase adjusting point</td></tr>
<tr><td rowspan="2">5</td><td>PB switching point</td><td>•PB</td><td>•Manual tracking
•Alignment tape SP stairstep (MHP-C or MH-C1)</td><td>•TP10 (VIDEO OUT) 02 A/V
•CN5 pin 5 (DRUM FF) (Ext.trigger) 01 MAIN</td><td>•R103 (PB SWITCHING POINT) 01 MAIN</td><td rowspan="2">1) Observe waveform at TP10 with external trigger from pin 5 of CN5.
2) Adjust R103 so that the trigger point is 6.5H before V. sync signal.</td></tr>
<tr><td colspan="5">
Fig. 2-2-9 PB switching point</td></tr>
</table>

2.3 Y (LUMINANCE) CIRCUIT

2.3.1 Pre-amp circuit

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
	Note: *This adjustment should be performed only when self-recording picture has flicker and B/W reversal after replacing the upper drum or Pre-amp board. It is necessary to correct each head characteristic obtain the optimum picture quality.*					
1	Video head resonance/ Fo	• PLAY	• Emergency OFF	• TP1 (REC FM OUT) 09 PRE-REC • CN5 pin 13 (TEST 0) • CN5 pin 14 (GND) 01 MAIN	• Separate chart	1) Short circuit pin 13 to pin 14 (GND) of CN5 on the MAIN board to select Emergency Off mode. 2) Supply a sweep signal with 1 MHz and 7.3 MHz markers from Sweep Generator to "A" on the PRE AMP board with a 1.2 kOhm resistor. **Note:** *"A"; refer to the table for each head adjustment.* 3) Set for play mode without tape. 4) Connect the oscilloscope to TP1 on the PRE AMP board with external trigger from the Sweep Generator V. SYNC output terminal. Adjust the sweep generator gain so that TP1 waveform does not distort. **Note:** *As the drum rotates without lock, the waveform on the oscilloscope may wane sometimes.* 5) Adjust "B" to set the resonance point to 7.3 MHz. 6) Adjust "C", 7.3 MHz (b) level is double 1 MHz level (a) as shown in Fig. 2-3-1. 7) Repeat step 2) and 6) for each channels according to table. 8) If necessary, adjust Q ratio to that of the least efficient channel to equal each channel characteristic.

Channel	"A"	"B"	"C"
1	Pin 3 of CN1	VC2	VR2
2	Pin 5 of CN1	VC4	VR4
3	Pin 2 of CN1	VC1	VR1
4	Pin 4 of CN1	VC3	VR3

Table 2-3-1

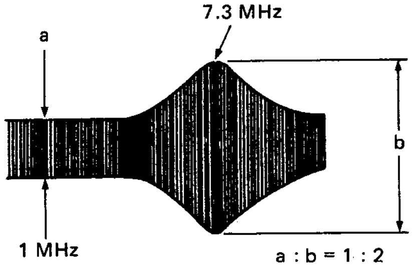


Fig. 2-3-1 Video head resonance/Fo

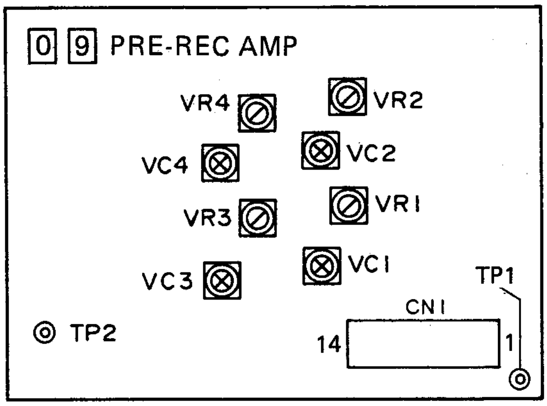
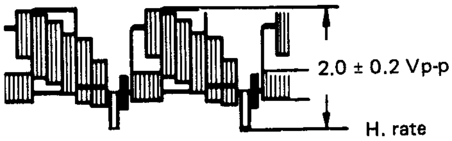
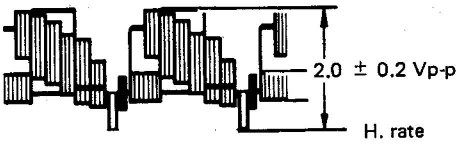
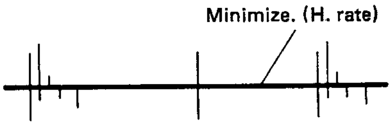


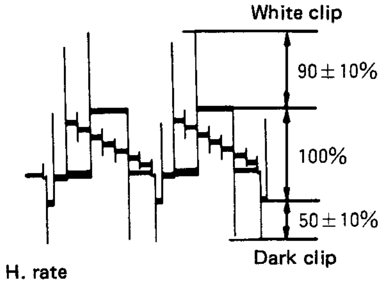
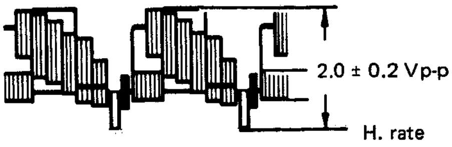
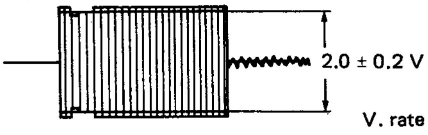
Fig. 2-3-2 PRE AMP board location

2.3.2 N (normal) VHS Y signal circuit

Note: *1) The following are the adjustment steps for normal VHS circuit in the order of adjustment. Keep in mind that if the previous adjustment is incorrect, the following adjustment will not be adjusted correctly.*

2) Unless otherwise specified, playback and recording modes are normal VHS mode, and test points and adjustment parts are located on the 0 2 *A/V board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	EE Y level	• *This circuit uses fixed resistors. If IC2 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• EE	• Color bar	• TP10 (VIDEO OUT)	• R212 (EE Y LEVEL)	1) Confirm Y level of 2.0 Vp-p at TP10. 2) If necessary, replace R212 with the variable resistor NVP1201-472N and adjust it for 2.0 Vp-p.
		 Fig. 2-3-3 EE Y level				
2	PB Y level	• *This circuit uses fixed resistors. If IC2 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• PB	• Alignment tape SP color bar (MHV-2C or MH-C1)	• TP10 (VIDEO OUT)	• R216 (N. PB Y LEVEL)	1) Play the color bar signal of the alignment tape to confirm that Y level is 2.0 Vp-p at TP10 in playback. 2) If necessary, replace R216 with the variable resistor NVP1201-472N and adjust it so that the Y level is 2.0 Vp-p.
		 Fig. 2-3-4 N. PB Y level				
3	Y NR input level	• *This circuit uses fixed resistors. If IC2 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• PB	• Alignment tape SP color bar (MHV-2C or MH-C1)	• TP11(Y NR RETURN) • TP15 (Y NR OUT)	• R214 (Y NR INPUT LEVEL)	1) Play the color bar signal of the alignment tape. 2) Connect CH-1 probe of a dual-trace oscilloscope to TP11 while CH-2 probe to TP15. Invert CH-2 signal and set the oscilloscope VOLTS/DIV switch to the same range to realize "ADD" mode. Confirm that TP11 has the same level as that of TP15, namely, level difference is minimum. 3) If necessary, replace R214 with the variable resistor NVP1201-681N and adjust it for minimum output.
		 Fig. 2-3-5 Y NR input level				

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	White & Dark clip	• *This circuit uses fixed resistors. If IC2 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• REC	• Color bar • SP	• TP9 (EM-PHASIS)	• R207 (N WHITE CLIP) • R204 (N DARK CLIP)	1) Confirm that white clip is 90% at TP9. 2) If necessary, replace R207 with the variable resistor NVP1201-103N and adjust it for 90% white clip. 3) Confirm that dark clip is 50% at TP9. 4) If necessary, replace R204 with the variable resistor NVP1201-681N and adjust it for 50% dark clip.
		 **Fig. 2-3-6** C white & dark clip				
5	Carrier deviation	• *This circuit uses fixed resistors. If IC2 is replaced, these may require replacement with variable resistors to allow adjustment.*				
						Note: *This adjustment should be performed only when EE and playback of the pre-recorded tape are normal, while the sync at self-recording is distorted (poor carrier set) or S/N is extremely poor (poor deviation).*
		• REC	• No input signal • SP	• TP12 (REC C FM)	• R211 (N CARRIER)	1) Connect a frequency counter to TP12, and confirm that frequency is 3.4 MHz ± 50 kHz without input signal. 2) If necessary, replace R211 with the variable resistor NVP1201-223N and adjust it for the specified value.
		• REC then PB	• Color bar • SP	• TP10 (VIDEO OUT)	• R209 (N DEVIA-TION)	3) Record the color bar signal and play it to confirm that Y level is 2.0 Vp-p at TP10 in playback. 4) If necessary, replace R209 with the variable resistor NVP1201-472N and adjust it in recording, and then confirm the result in playback.
		 **Fig. 2-3-7** Carrier/deviation				
6	REC FM level	• REC	• Color bar • SP	• TP1 (REC FM OUT) 09 PRE-REC AMP	• R218 (N REC FM LEVEL)	1) Adjust R218 to obtain 2.0 V as the FM level in the pedestal section.
		 **Fig. 2-3-8** REC FM level				

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
7	VIDEO EQ	•REC then PB	•Color sweep •SP	•TP10 (VIDEO OUT)	•R221 (N VIDEO EQ)	**Note:** *This adjustment should be performed only when a playback picture at self-recording is not sharp (low by 2 MHz component) or there is B/W reversal (high by 2 MHz component) in it after the upper drum was replaced.* 1) Record the color sweep signal and play it to observe waveform at TP10. 2) In the case the sweeper's 100 kHz marker frequency (start) is for 4 scale divisions on the oscilloscope screen, adjust R221 so that 2 MHz marker level becomes 3 scale divisions. **Note:** *After re-assembling the deck and camera sections together with, record a high contrast object in the SP and EP modes. While observing the playback picture, confirm that there is no B/W reversal and picture is sharp.*

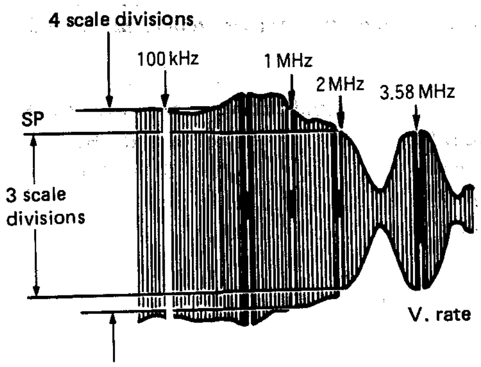


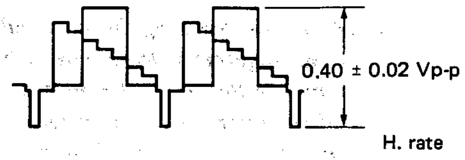
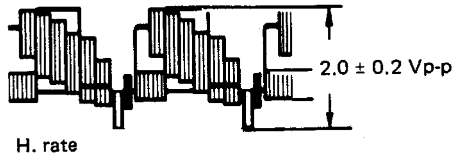
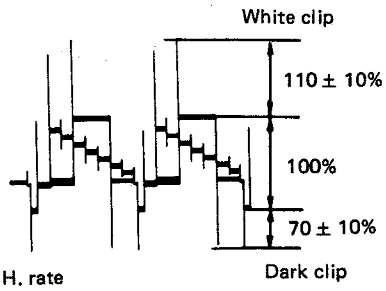
Fig. 2-3-9 Video EQ

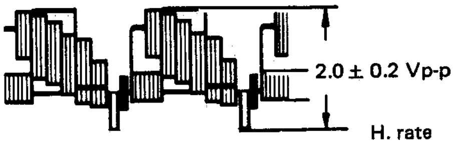
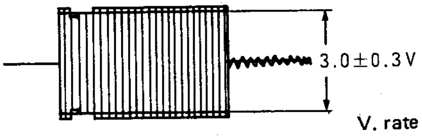
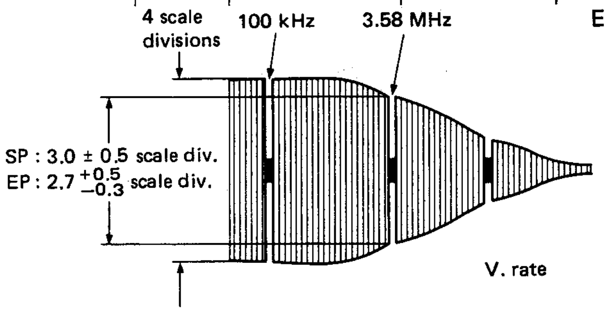
2.3.3 S-VHS Y signal circuit

Note: *1) Before proceeding to do the following items, make sure to confirm that the N (normal) VHS Y signal circuit has been correctly adjusted. (Refer to Section 2.3.2.)*

2) The following are the adjustment steps for S-VHS circuit in the order of adjustment. Keep in mind that if the previous adjustment is incorrect, the following adjustment will not be adjusted correctly.

3) Unless otherwise specified, playback and recording modes are S-VHS mode, and test points and adjustment parts are located on the 0 2 *A/V board.*

<table>
<tr><th>No.</th><th>Item</th><th>Mode</th><th>Signal
& Setting</th><th>Measurement Point</th><th>Adjustment Parts</th><th>Adjustment Procedure</th></tr>
<tr><td>1</td><td>Sub emphasis input level</td><td colspan="5">• <i>This circuit uses fixed resistors. If IC2 is replaced, these may require replacement with variable resistors to allow adjustment.</i></td></tr>
<tr><td></td><td></td><td>• EE</td><td>• Color bar</td><td>• TP6 (SUB EMPHA IN)</td><td>• R213 (SUB EMPHASIS INPUT LEVEL)</td><td>1) Confirm that signal level is 0.40 Vp-p at TP6.
2) If necessary, replace R213 with the variable resistor NVP1201-102N and adjust it for 0.40 Vp-p.</td></tr>
<tr><td></td><td></td><td colspan="4">
Fig. 2-3-10 Sub emphasis input level</td><td></td></tr>
<tr><td>2</td><td>PB Y level</td><td colspan="5">• <i>This circuit uses fixed resistors. If IC2 is replaced, these may require replacement with variable resistors to allow adjustment.</i></td></tr>
<tr><td></td><td></td><td>• PB</td><td>• Alignment tape SP color bar (MHV-2HC or MH-C1H)</td><td>• TP10 (VIDEO OUT)</td><td>• R215 (S PB Y LEVEL)</td><td>1) Confirm that Y level is 2.0 Vp-p at TP10.
2) If necessary, replace R215 with the variable resistor NVP1201-472N and adjust it for 2.0 Vp-p.</td></tr>
<tr><td></td><td></td><td colspan="4">
Fig. 2-3-11 PB Y level</td><td></td></tr>
<tr><td>3</td><td>White & Dark clip</td><td colspan="5">• <i>This circuit uses fixed resistors. If IC2 is replaced, these may require replacement with variable resistors to allow adjustment.</i></td></tr>
<tr><td></td><td></td><td>• REC</td><td>• Color bar</td><td>• TP9 (EMPHASIS)</td><td>• R206 (S WHITE CLIP)
• R205 (S DARK CLIP)</td><td>1) Confirm that white clip is 110% at TP9.
2) If necessary, replace R206 with the variable resistor NVP1201-332N and adjust it for 110% white clip.
3) Confirm that dark clip is 70% at TP9.
4) If necessary, replace R205 with the variable resistor NVP1201-682N and adjust it for 70% dark clip.</td></tr>
<tr><td></td><td></td><td colspan="4">
Fig. 2-3-12 S white & dark clip</td><td></td></tr>
</table>

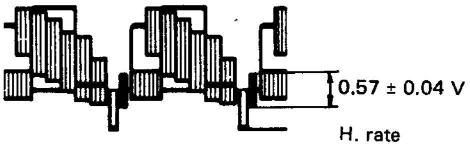
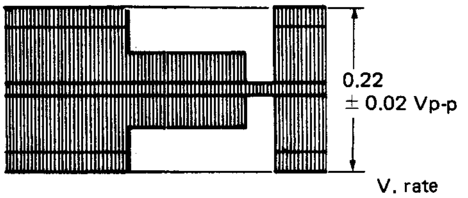
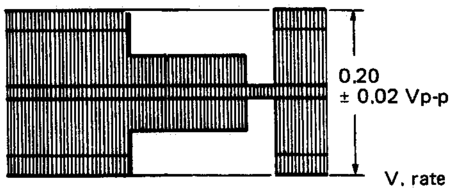
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	Carrier deviation	• *This circuit uses fixed resistors. If IC2 is replaced, these may require replacement with variable resistors to allow adjustment.*				**Note:** *This adjustment should be performed only when EE and playback of the pre-recorded tape are normal, while the sync at self-recording is distorted (poor carrier set) or S/N is extremely poor (poor deviation).*
		• REC	• No input signal • SP	• TP12 (REC FM)	• R210 (S CARRIER)	1) Connect a frequency counter to TP12, and confirm that frequency is 5.4 MHz ± 50 kHz without input signal. 2) If necessary, replace R210 with the variable resistor NVP1201-153N and adjust it for the specified value.
		• REC then PB	• Color bar • SP	• TP10 (VIDEO OUT)	• R208 (S DEVIATION)	3) Record the color bar signal and play it to confirm that Y level is 2.0 Vp-p at TP10 in playback. 4) If necessary, replace R208 with the variable resistor NVP1201-472N and adjust it in recording, and then confirm the result in playback.
		 **Fig. 2-3-13** Carrier/deviation				
5	REC FM level	• REC	• Color bar • SP	• TP1 (REC FM OUT) 09 PRE-REC AMP	• R217 (S REC FM LEVEL)	1) Adjust R217 to obtain 3.0 V as the FM level in the pedestal section.
		 **Fig. 2-3-14** REC FM level				
6	Video EQ					**Note:** *This adjustment should be performed only when a playback picture at self-recording is not sharp (low by 3.58 MHz component) or there is B/W reversal (high by 3.58 MHz component) in it after the upper drum was replaced.*
		• REC then PB	• Color sweep • SP/EP	• TP10 (VIDEO OUT)	• R219 (S SP VIDEO EQ) • R220 (S EP VIDEO EQ)	1) Record the color sweep signal and play it to observe waveform at TP10. 2) If the sweeper's 100 kHz marker frequency is for 4 scale divisions on the oscilloscope screen, adjust R219 so that 3.58 MHz marker level becomes 3.0 scale divisions. 3) After the above adjustment for SP mode, change the mode to EP and perform the recording and playback of the color sweep signal in the same manner as the step 1) and adjust R220 so that the level of the 3.58 MHz marker is 2.7 scale divisions.
		 **Fig. 2-3-15** Videio EQ				**Note:** *After re-assembling the deck and camera sections together with, record a high contrast object in the SP and EP modes. While observing the playback picture, confirm that there is no B/W reversal and picture is sharp.*

2.4 COLOR SIGNAL CIRCUIT

2.4.1 N (normal) VHS color signal circuit

Note: *1) The following are the adjustment steps for normal VHS color circuit in the order of adjustment. Keep in mind that if the previous adjustment is incorrect, the following adjustment will not be adjusted correctly.*

2) Unless otherwise specified, playback and recording modes are normal VHS mode, and all test points and adjustment parts are located on the 0 2 *A/V board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	3.58 MHz VXO	• PB	• Alignment tape SP color bar (MHV-2C or MH-C1)	• TP2 (VXO OUT 1)	• C5 (VXO)	1) Connect a frequency counter to TP2. 2) Adjust C5 so that the frequency becomes 3.579545 MHz ± 50 Hz.
2	320 fH VCO	• EE	• No input signal	• TP4 (SUB BF OUT) • TP1 (GND) • TP3 (VCXO OUT 2) • TP5 (DRUM FF)	• R202 (320 fH VCO)	1) Connect a frequency counter to TP4. 2) Connect a jumping wire between TP1 and TP3. 3) Confirm 0 V (L) at TP5. When it is H, turn off the power once and turn it on again. Repeat this operation until the potential becomes L. 4) Adjust R202 so that the frequency becomes 627.4 ± 3 kHz.
3	EE burst level	• *This circuit uses fixed resistors. If IC1 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• EE	• Color bar	• TP10 (VIDEO OUT)	• R224 (EE BURST LEVEL)	1) Confirm burst level of 0.57 V at TP10. 2) If necessary, replace R224 with the variable resistor NVP1201-681N and adjust it for 0.57 V.
		 Fig. 2-4-1 EE burst level				
4	PB color level	• PB	• Alignment tape SP color bar (MHV-2C or MH-C1)	• TP5 (PB COLOR) • TP8 (Y OUT) (Ext.trigger)	• R201 (PB COLOR LEVEL)	1) Observe waveform at TP5 with external trigger pulse of TP8. 2) Adjust R201 so that signal level becomes 0.22 Vp-p.
		 Fig. 2-4-2 PB color level				
5	REC color level	• REC then PB	• Color bar • SP	• TP5 (PB COLOR) • TP8 (Y OUT) (Ext.trigger)	• R223 (C REC COLOR LEVEL)	1) Record the color bar signal and play it back. 2) Observe waveform at TP5 with external trigger pulse of TP8. 3) Adjust R223 in recording to obtain 0.20 Vp-p as the highest level of four signals.
		 Fig. 2-4-3 REC color level				

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
6	PB burst level	• REC then PB	• Color bar • SP	• TP10 (VIDEO OUT)	• R203 (PB BURST LEVEL)	1) Record the color bar signal and play it back. 2) Observe waveform at TP10. 3) Adjust R203 so that burst level becomes 0.57 V.

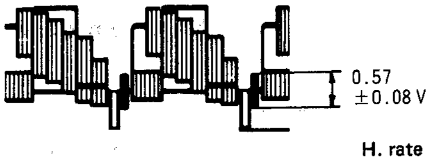


Fig. 2-4-4 PB burst level

2.4.2 S-VHS color signal circuit

Note: *1) Before proceeding to do the following checks and adjustment, make sure that the N (normal) color signal circuit has been correctly adjusted.*

2) The following are the adjustment steps for S-VHS C circuit in the order of adjustment. Keep in mind that if the previous adjustment is incorrect, the following adjustment will not be adjusted correctly.

3) Unless otherwise specified, playback and recording modes are S-VHS mode, and all test points and adjustment parts are located on the 0 2 *A/V board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	REC color level	• REC then PB	• Color bar • SP	• TP5 (PB COLOR) • TP8 (Y OUT) (Ext.trigger)	• R222 (S REC COLOR LEVEL)	1) Record the color bar signal and play it back. 2) Observe waveform at TP5 with external trigger pulse of TP8. 3) Adjust R222 in recording to obtain 0.19 Vp-p as the highest level of four signals.

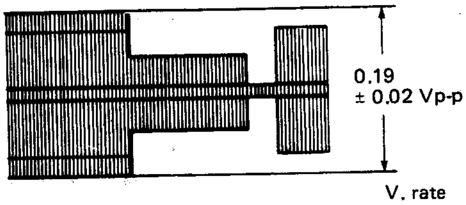


Fig. 2-4-5 REC color level

2.5 AUDIO CIRCUIT

Note: • *'Manual tracking' in the 'Mode' column is operated by simultaneously pressing of the tracking + and – buttons. To shift the mode to auto tracking, simultaneously press the tracking + and – buttons again.*

2.5.1 Normal audio circuit

Note: *Unless otherwise specified, playback and recording modes are Normal VHS mode, and all test points and adjustment parts are located on the* $\boxed{0}\boxed{2}$ *A/V board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Bias level	• REC	• No input signal • SP	• TP301 (N AUDIO BIAS +) • TP302 (N AUDIO BIAS –)	• R337 (N BIAS LEVEL)	1) Connect an audio tester between TP301 and TP302. 2) Adjust R337 so that bias level is –50 dBs (7.1 mVp-p, 2.5 mVrms) in SP REC mode.
2	PB audio level	• REC then PB	• Audio output select switch: NORMAL • Manual tracking • SP	• Audio output terminal	• R319 (N PB LEVEL)	1) Supply a sine wave of 1 kHz, –20 dBs (80 mV pp, 28.3 mVrms) to the audio input terminal. 2) Connect an audio tester to the audio output terminal, and adjust R319 in recording so that playback level becomes –6 dBs (1.1 Vp-p, 0.39 Vrms) in playback.

2.5.2 Hi-Fi audio circuit

Note: *Unless otherwise specified, playback and recording modes are Normal VHS mode, and test points and adjustment parts are located on the* $\boxed{0}\boxed{2}$ *A/V board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	REC FM fo	• *This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• REC	• No input audio signal	• IC501 pin 22 (L MOD OUT)	• R403 (L CARRIER)	1) Connect a frequency counter to pin 22 of IC501, and confirm that the frequency is 1.3 MHz ± 5 kHz. 2) If necessary, replace R403 with the variable resistor NVP1201-103N, and adjust them for 1.3 MHz.
				• IC501 pin 39 (R MOD OUT)	• R404 (R CARRIER)	3) Connect a frequency counter to pin 39 of IC501, and confirm that the frequency is 1.7 MHz ± 5 kHz. 4) If necessary, replace R404 with the variable resistor NVP1201-332N, and adjust it for 1.7 MHz.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
2	Deviation	*• This circuit uses fixed resistors. If IC501 is replaced, these may require replacement with variable resistors to allow adjustment.*				
		• REC then PB	• Audio output selector SW: Hi-Fi • SP	• CN4 pin 7 (AUDIO L OUT) • CN4 pin 17 (AUDIO R OUT)	• R407 (L DEVIATION) • R408 (R DEVIATION)	1) Supply a sine wave of 1 kHz, –8 dBs (0.9 Vp-p, 0.32 Vrms) to the AUDIO IN terminal. 2) Confirm that output level is –6 dBs (1.1 Vp-p, 0.39 Vrms) ± 1 dBs. 3) If necessary, replace R407 and R408 with the variable resistor NVP1201-153N respectively, and adjust them for –6 dBs.
3	REC FM level	• REC then PB	• No input audio signal • Input color bar signal • Manual tracking • SP • S-VHS	• CN5 pin 3 (A FM) 01 MAIN	• R507 (REC FM LEVEL)	1) Only supply color bar signal. 2) Perform recording with an S-VHS tape and play it back. 3) Adjust R507 so that the lower level of two channels is 45 ± 5 mVp-p in playback.

re

with variable

dBs (0.9 Vp-p,
minal.
dBs (1.1 Vp-p,

R408 with the
N respectively,

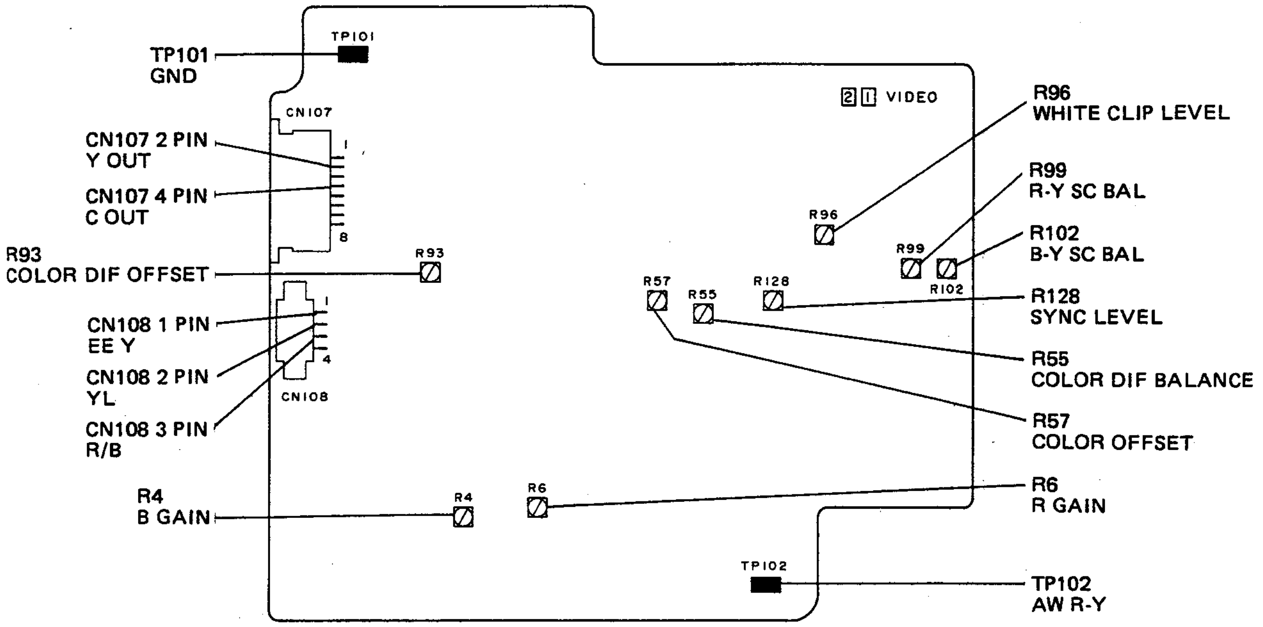
S tape and play

r level of two
back.

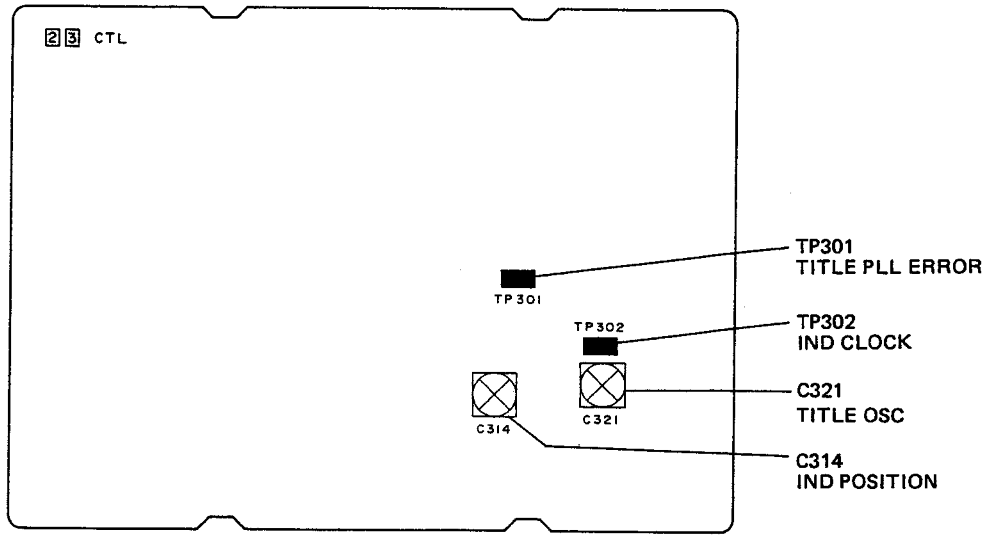
SECTION 3
CAMERA SECTION ADJUSTMENT

- **ADJUSTMENT ELEMENT LOCATION FOR CAMERA SECTION**

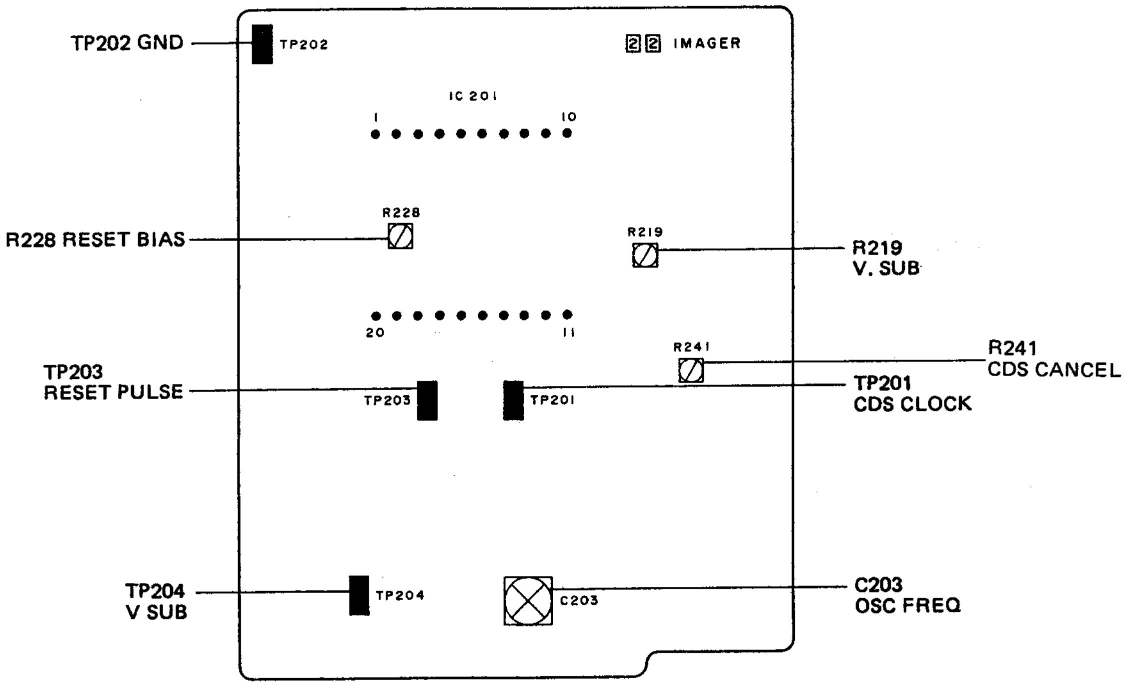
— VIDEO —


TP101
GND
TP101
CN107
CN107 2 PIN
Y OUT
CN107 4 PIN
C OUT
1
8
R93
COLOR DIF OFFSET
R93
CN108 1 PIN
EE Y
CN108 2 PIN
YL
CN108 3 PIN
R/B
1
4
CN108
R4
B GAIN
R4
R6
21 VIDEO
R96
WHITE CLIP LEVEL
R96
R99
R-Y SC BAL
R99
R102
B-Y SC BAL
R102
R57
R55
R128
R128
SYNC LEVEL
R55
COLOR DIF BALANCE
R57
COLOR OFFSET
R6
R GAIN
TP102
TP102
AW R-Y

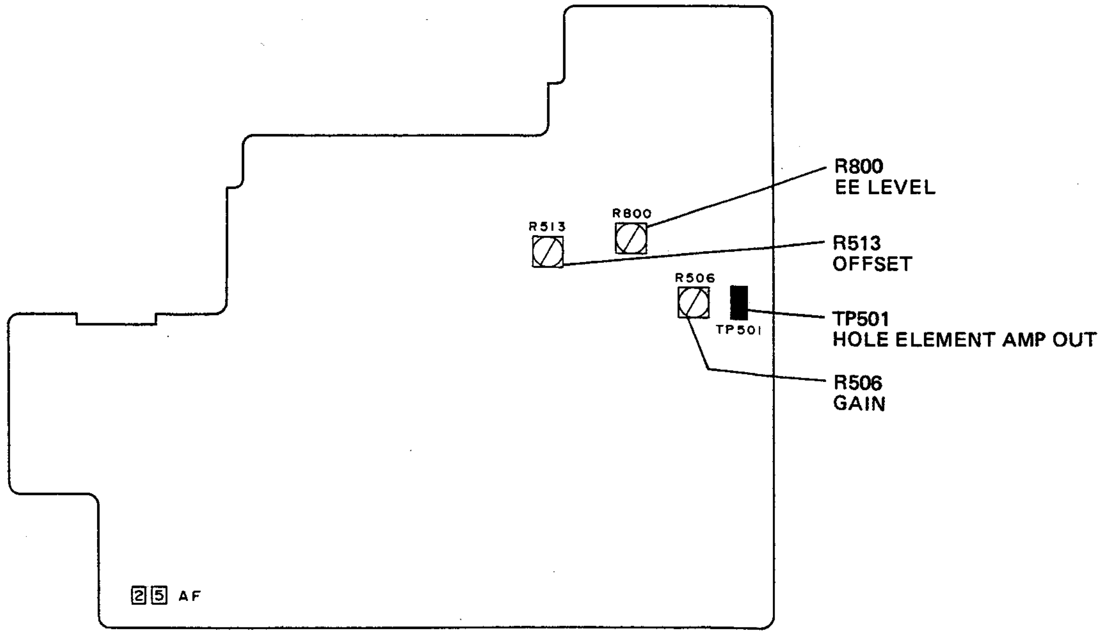
— CTL —


23 CTL
TP301
TP301
TITLE PLL ERROR
TP302
TP302
IND CLOCK
C321
C321
TITLE OSC
C314
C314
IND POSITION

— IMAGER —


TP202 GND
TP202
22 IMAGER
IC 201
1
10
R228
R228 RESET BIAS
R219
R219
V. SUB
20
11
R241
R241
CDS CANCEL
TP203
RESET PULSE
TP203
TP201
TP201
CDS CLOCK
TP204
V SUB
TP204
C203
C203
OSC FREQ

— AF —


R800
EE LEVEL
R513
R800
R513
OFFSET
R506
TP501
TP501
HOLE ELEMENT AMP OUT
R506
GAIN
25 AF

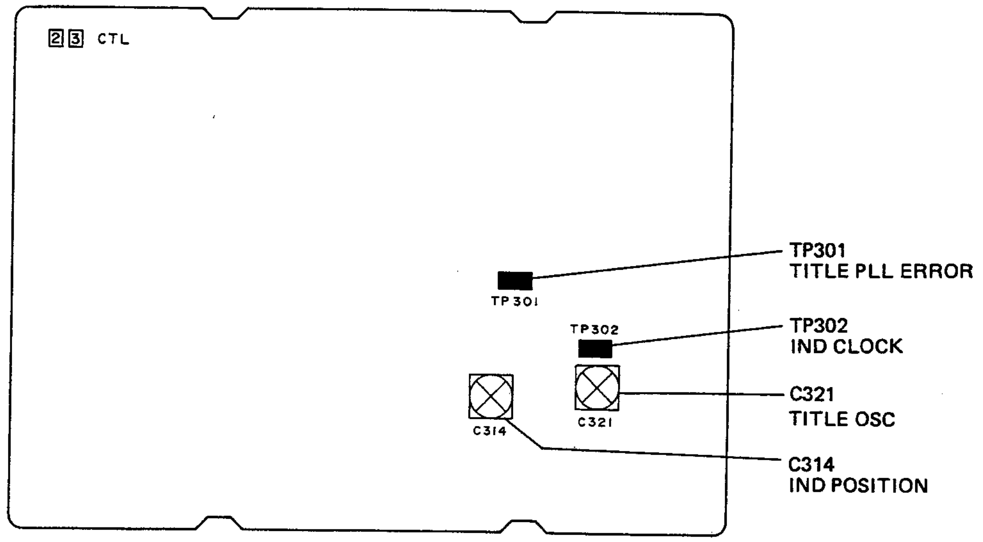
.EVEL

ALANCE

ET

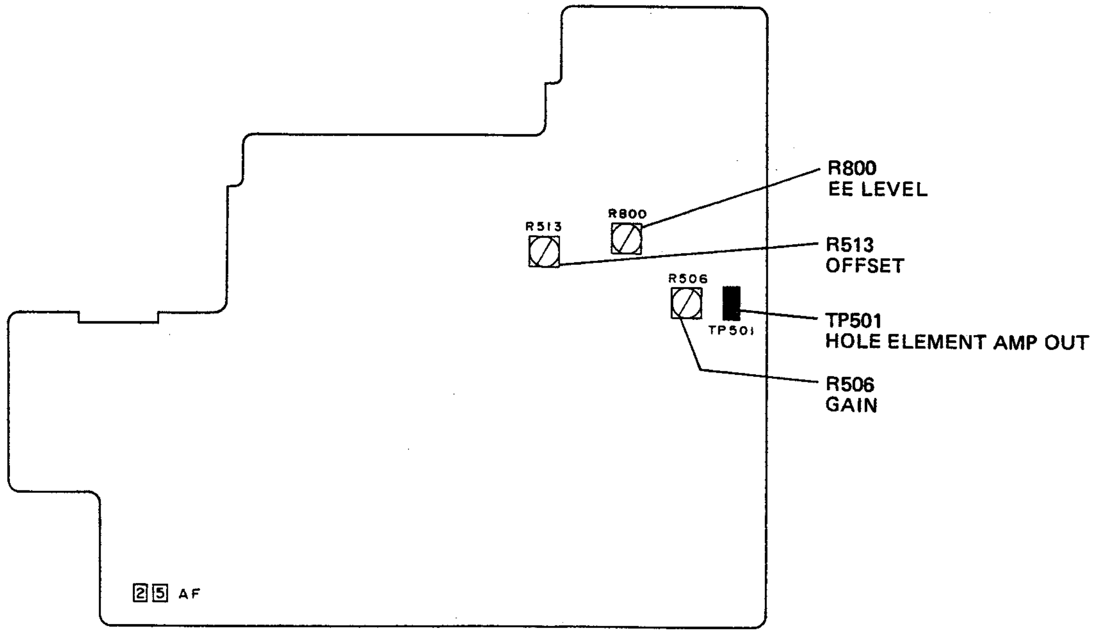
NCEL

— CTL —



23 CTL
TP301
TP302
C314
C321
TP301 TITLE PLL ERROR
TP302 IND CLOCK
C321 TITLE OSC
C314 IND POSITION

— AF —



R513
R800
R506
TP501
25 AF
R800 EE LEVEL
R513 OFFSET
TP501 HOLE ELEMENT AMP OUT
R506 GAIN

3.1 PREPARATION

3.1.1 Precautions

1. For the following adjustments, two or more halogen lamps whose illuminance is more than 1200 lux with color temperature of 3100 K.
2. Make sure to use a clean test pattern and camera filters.
3. All adjustments must be performed in a room where lights other than the specific illumination are shut out.
4. Unless otherwise specified, the controls and camera mode must be set as follows.

   Focus : MANUAL
   Iris : AUTO
   White balance : PRESET INDOOR
   Shutter speed : STANDARD
   Mode : REHEARSAL
5. During the adjustments, an oscilloscope's channel B should be connected to pin 2 (Y OUT) of CN107 of the $\boxed{2}\boxed{1}$ VIDEO board and the channel A should be connected to a specified test point for measurement by minus trigger.
6. Digit after the hyphens to indicate combined filter value.

   Examples : ① C2 + C4 = C6
   ② W4 + W8 = W12
   ③ ND2 + ND4 + NC8 = ND64
   $ND2^1 + ND2^2 + ND2^3 = ND2^6 = ND64$
   ④ CC10Y + CC05Y = CC15Y
   ⑤ CC10B + CC05B = CC15B

3.1.2 Connection for adjustment

- For disassembly of the camera section, refer to the section "DISASSEMBLY OF CAMERA SECTION".

Connector	No.of pin	Connection
①	3	$\boxed{0}\boxed{3}$ JACK CN2 ↔ $\boxed{2}\boxed{2}$ IMAGER CN201
②	8	$\boxed{0}\boxed{2}$ A/V CN6 ↔ $\boxed{2}\boxed{1}$ VIDEO CN107
③	8	$\boxed{0}\boxed{1}$ MAIN CN8 ↔ $\boxed{2}\boxed{3}$ CTL CN305
④	7	$\boxed{2}\boxed{4}$ AW CN401 ↔ SENSOR UNIT
⑤	16	$\boxed{0}\boxed{1}$ MAIN CN10 ↔ OPERATION UNIT

Fig. 3-1-1 Destination of patch cords

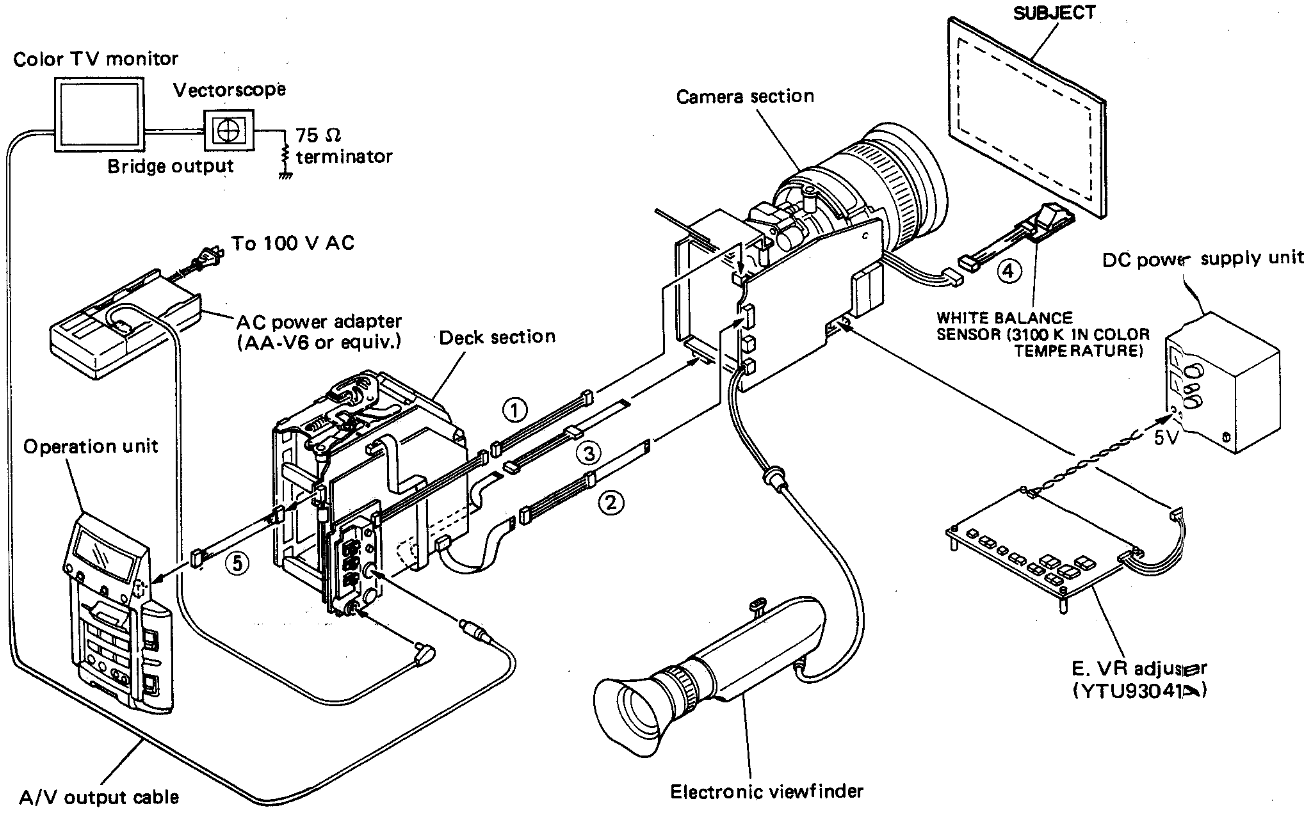

SUBJECT
Color TV monitor
Vectorscope
75 Ω
terminator
Bridge output
Camera section
To 100 V AC
AC power adapter
(AA-V6 or equiv.)
Deck section
DC power supply unit
④
WHITE BALANCE
SENSOR (3100 K IN COLOR
TEMPERATURE)
①
③
②
⑤
5V
Operation unit
E. VR adjuster
(YTU93041A)
A/V output cable
Electronic viewfinder

Fig. 3-1-1 Connection for camera adjustment

3.1.3 Basic operation of E. VR adjuster

1. Make sure to connect the camera section and the E. VR adjuster in the condition of power off.
2. Turn on the POWER ON/RESET switch of the E. VR adjuster.
   (→ All LEDs light.)
3. Turn on the camera section.
4. Set the camera mode to "REHEARSAL", and then set the white balance to "PRESET INDOOR", the AF to "MANUAL" and the iris to "AUTO".
5. Select a channel by pressing the "+/–" button.
6. Press the START button.
   (→ Setting data of the camera are read out, and they are displayed in the SET-DATA, JIG-DATA LEDs.)
7. Input specified adjustment data by pressing the UP/DOWN button.
   (→ The SET-DATA indication goes out, while the MEMORY LED lights.)
8. After confirming that the inputted data are correct, press the MEMORY button.
   (→ The MEMORY LED goes out and the inputted data are displayed.)
9. Press the END button.
10. Repeat the above steps 5 through 6.
11. After the adjustment, turn off the power switch in the order of the E. VR adjuster and the camera. Then, disconnect them.

Notes: *1) In the process of adjustment, the IRIS and SHUTTER buttons are ineffectual unless the START button of the E. VR adjuster is pressed.*
2) Do not press the RESET button of the E. VR adjuster except in case of trouble in data transmission and reception.

3.1.4 Setting of CPU's white balance data

Before starting the following adjustments, set the CPU's white balance data by the E. VR adjuster as follows.

CH	5A	5B	5C	5D	5E	5F	60	61	62	63	64	65
Data	48	6F	64	42	60	50	59	67	6D	4D	0C	60

Table 3-1-1 Setting of CPU's data for white balance

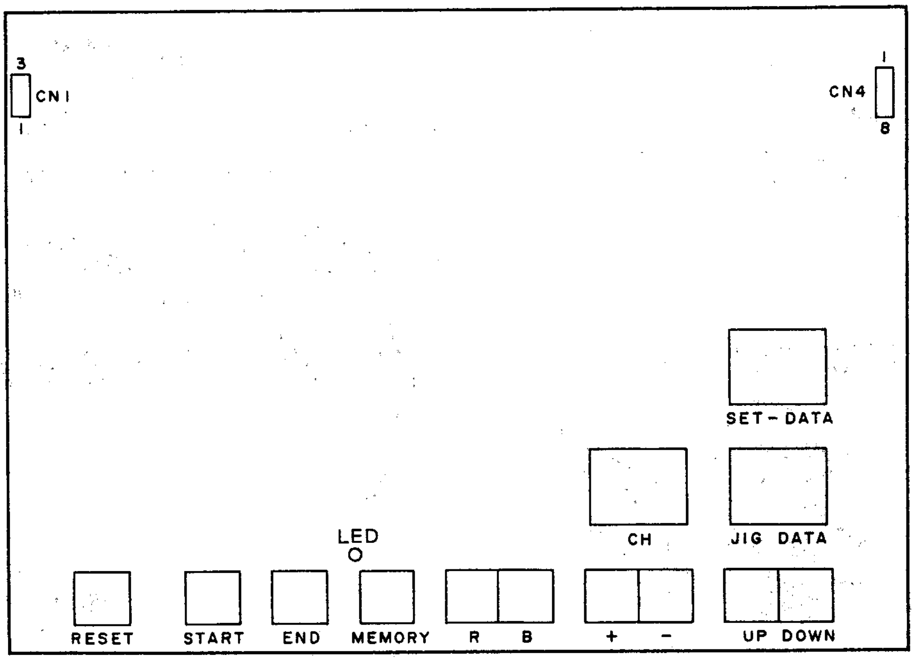
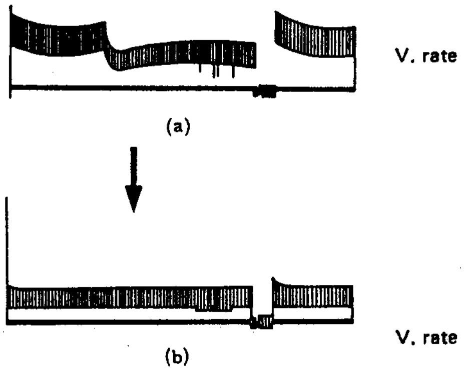
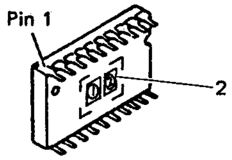


Fig. 3-1-2 EVR adjuster buttons location

3.2 LUMINANCE (Y) SIGNAL SYSTEM

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	SSG clock osc. freq.	• EE	—	• TP201 (SSG CLOCK) $\boxed{2}\boxed{2}$ IMAGER	• C203 (OSC FREQ) $\boxed{2}\boxed{2}$ IMAGER	1) Connect a frequency counter to TP201, and adjust C203 so that the frequency counter reads 14.318180 MHz ± 50 Hz.
2	CDS cancel	• EE	Lens: Closed Shutter: 1/100	• CN107 Pin 2 (Y OUT) $\boxed{2}\boxed{1}$ VIDEO	• R241 (CDS CANCEL) $\boxed{2}\boxed{2}$ IMAGER	1) Close the lens with the lens cap and set the shutter speed to 1/100 (sec). 2) Adjust R241 so that waveform at pin 2 of CN-107 becomes flat.
			 **Fig. 3-2-1** CDS cancel			
3	V. SUB	• This item must be adjusted only after the CCD is replaced, otherwise R219 must not be disturbed.				
		• EE	—	• IC201 pin 4 (V. SUB) $\boxed{2}\boxed{2}$ IMAGER	• R219 (V. SUB) $\boxed{2}\boxed{2}$ IMAGER	1) Adjust R219 so that the level of pin 4 of IC201 meets the specified value shown in the following table according to the rank of the CCD. **Note:** *The rank of the CCD is shown on the back side of the IC. For this adjustment, refer to the indication in the part of 2 of the figure.*
			 **Fig. 3-2-2** Indication of CCD rank			

Rank indication in 2 of the above figure	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z
DC value (V)	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5

Table 3-2-1 V. SUB adjustment value by CCD rank

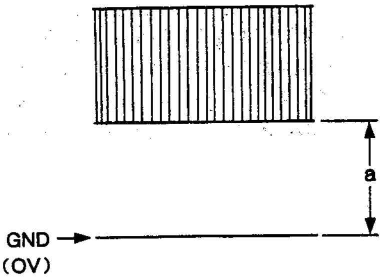
<table>
<tr><th>No.</th><th>Item</th><th>Mode</th><th>Signal
& Setting</th><th>Measurement
Point</th><th>Adjustment
Parts</th><th>Adjustment Procedure</th></tr>
<tr><td>4</td><td>Reset bias</td><td colspan="5">• This item must be adjusted only after the CCD is replaced, otherwise R228 must not be disturbed.</td></tr>
<tr><td></td><td></td><td>• EE</td><td>–</td><td>• TP203
(RESET PULSE)
$\boxed{2}\boxed{2}$
IMAGER</td><td>• R228
(RESET BIAS)
$\boxed{2}\boxed{2}$
IMAGER</td><td>1) Observe waveform at TP203 by an oscilloscope.
2) Adjust R228 so that the level 'a' (DC level) meets the specified value shown in the following table according to the rank of CCD.
Note: *The rank of the CCD is shown on the back side of the IC. For this adjustment, refer to the indication in the part of 1 of the figure.*</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">

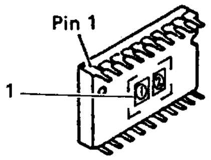
Fig. 3-2-3 Reset bias


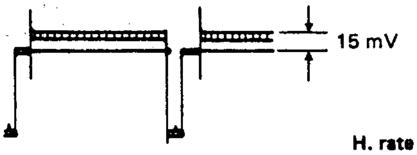
Fig. 3-2-4 Indication of CCD rank</td><td></td></tr>
<tr><td></td><td></td><td></td><td colspan="4"><table>
<tr><td>Rank indication in 1 of the above figure</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr>
<tr><td>DC value (V)</td><td>0.5</td><td>1.0</td><td>1.5</td><td>2.0</td><td>2.5</td><td>3.0</td><td>3.5</td><td>4.0</td><td>4.5</td><td>5.0</td></tr>
</table>
Table 3-2-2 Reset bias adjustment value by rank</td></tr>
<tr><td>5</td><td>YH setup level</td><td>• EE</td><td>• Iris: Closed</td><td>• CN107
pin 2
(Y OUT)
$\boxed{2}\boxed{1}$
VIDEO</td><td>• E9 (YH SETUP)
[E. VR]</td><td>1) Set the channel of the E. VR adjuster to E9 and press the START button.
2) Close the iris manually.
3) Adjust the data of the channel E9 of the E. VR adjuster so that the setup level becomes 15 mV.
4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">

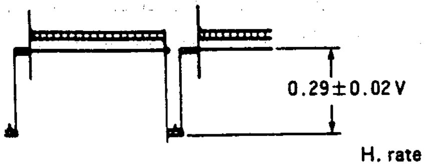
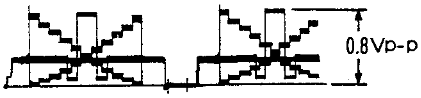
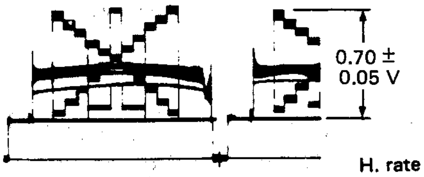
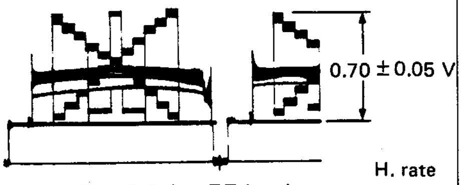
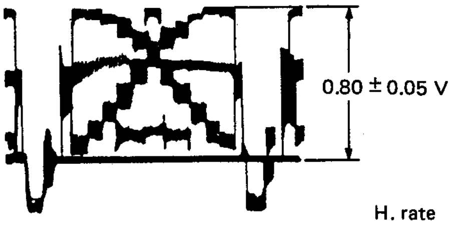
Fig. 3-2-5 YH setup level</td><td></td></tr>
<tr><td>6</td><td>Sync. level</td><td>• EE</td><td>• Lens: Closed</td><td>• CN107
pin 2
(Y OUT)
$\boxed{2}\boxed{1}$
VIDEO</td><td>• R128
(SYNC LEVEL)
$\boxed{2}\boxed{1}$
VIDEO</td><td>1) Close the lens with the lens cap.
2) Adjust R128 so that sync. level becomes 0.29 V at pin 2 of CN107 of the VIDEO board.</td></tr>
<tr><td></td><td></td><td></td><td colspan="3">

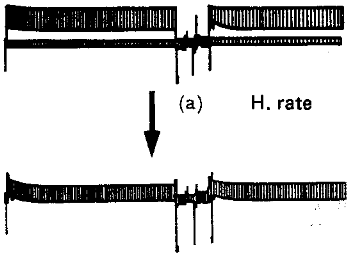
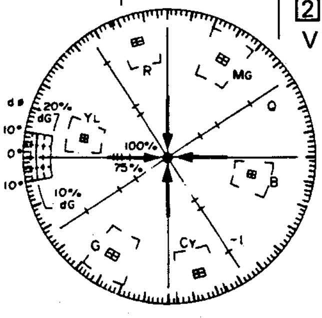
Fig. 3-2-6 Sync. level</td><td></td></tr>
</table>

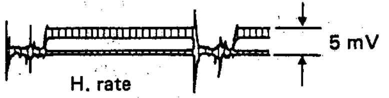
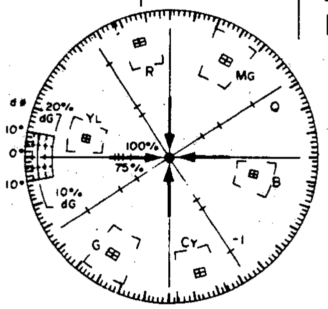
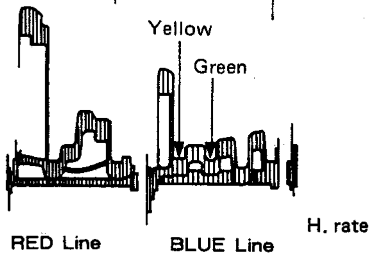
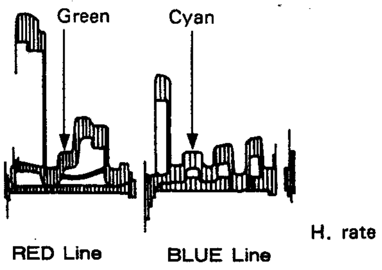
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
7	Y_H gain	• EE	• Gray scale • Iris: Manual	• CN108 pin 1(EE Y) $\boxed{2}\boxed{1}$ VIDEO		1) Set the channel of the E. VR adjuster to EA and press the START button. 2) Pick up the gray scale. 3) Manually operate the iris to obtain 0.8 Vp-p of signal level at pin 1 of CN108.
			 **Fig. 3-2-7** EE Y			
				• CN107 pin 2 (Y OUT) $\boxed{2}\boxed{1}$ VIDEO	• EA (Y_H GAIN) [E. VR]	4) Adjust the data of the channel EA of the E. VR adjuster so that signal level at pin 2 of CN107 becomes 0.70 V. 5) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
			 **Fig. 3-2-8** Y_H gain			
8	Max. AGC setting	• EE	—	—	• E0 (AGC GAIN) [E. VR]	1) Set the data of the channel E0 of the E. VR adjuster to '7F'.
9	EE level	• EE	• Gray scale • Just scan	• CN107 pin 2 (Y OUT) $\boxed{2}\boxed{1}$ VIDEO	• R800 (EE LEVEL) $\boxed{2}\boxed{5}$ AF	1) Pick up the gray scale in just scan. 2) Adjust R800 so that signal level at pin 2 of CN-107 becomes 0.70 V.
			 **Fig. 3-2-9** EE level			
10	White clip level	• EE	• Gray scale • Iris: Manual	• CN107 Pin 2 (Y OUT) $\boxed{2}\boxed{1}$ VIDEO	• R96 (WHITE CLIP LEVEL) $\boxed{2}\boxed{1}$ VIDEO	1) Press the START button of the E. VR adjuster. 2) Pick up the gray scale. 3) Manually operate the iris to flatten the waveform of pin 2 of CN107 for the upper three steps of the gray scale. 4) Adjust R96 so that the signal level is 0.80 V. 5) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
			 **Fig. 3-2-10** White clip level			

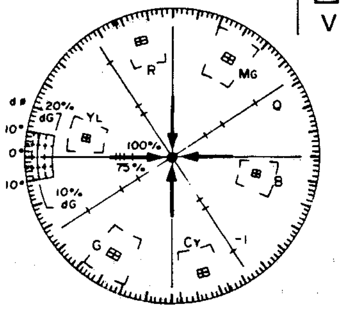
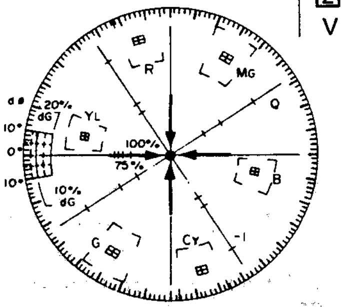
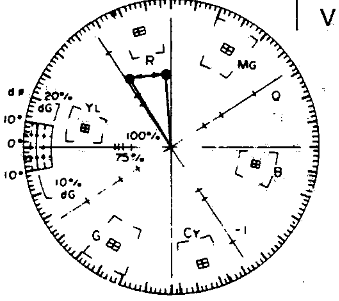
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
11	Title osc.	•EE	–	• TP301 (TITLE PLL ERROR) $\boxed{2}\boxed{3}$ CTL	• C321 (TITLE OSC) $\boxed{2}\boxed{3}$ CTL	1) Adjust C321 so that the level at TP301 becomes 1.7 ± 0.2 V DC.
12	Indicator position	•EE	• Lens: Closed • Day/Time switch: ON	• E. VF indicator	• C314 (IND POSITION) $\boxed{2}\boxed{3}$ CTL	1) Close the lens with the lens cap and turn on the Day/Time switch. 2) Adjust C314 so that the white balance indication and the day/time indication are positioned in the center (midpoint of the left- and right-most indication positions) in the viewfinder respectively.
13	Hall element	•EE	• Iris: Open with lens caped	• TP501 (HALL ELEMENT DC OUT)	• R506 (GAIN) $\boxed{2}\boxed{5}$ AF	1) Press the START button of the E. VR adjuster. 2) Open the iris manually with lens caped. 3) Adjust R506 so that the level at TP501 becomes $3.95^{+0}_{-0.05}$ V DC. 4) Manually close the iris. 5) Adjust R513 so that the level at TP501 becomes $1.0^{+0.05}_{-0}$ V DC. 6) Repeat the above steps 2) through 5) to confirm that the level meets the specified value both in the conditions of the iris open and closed. 7) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
			• Iris: Closed	• TP501 (HALL ELEMENT DC OUT) $\boxed{2}\boxed{5}$ AF	• R513 (OFFSET) $\boxed{2}\boxed{5}$ AF	

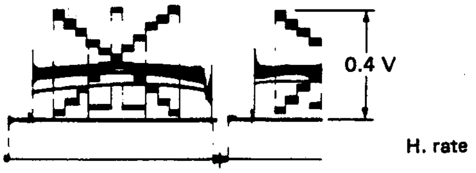
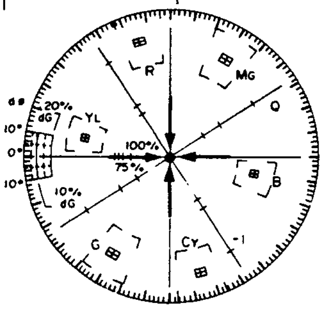
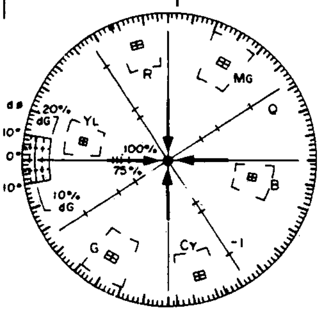
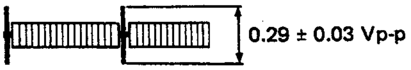
3.3 COLOR SIGNAL SYSTEM

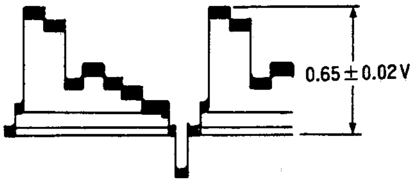
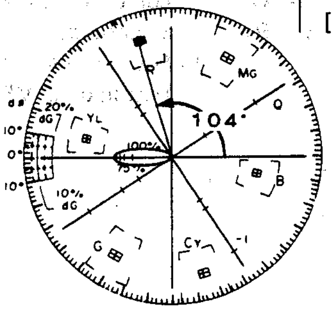
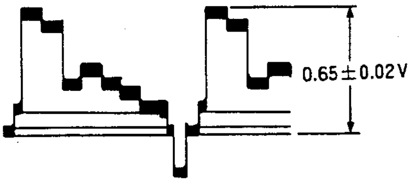
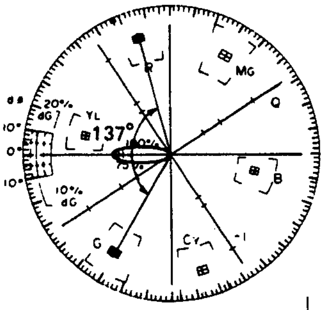
3.3.1 Standard indoor mode

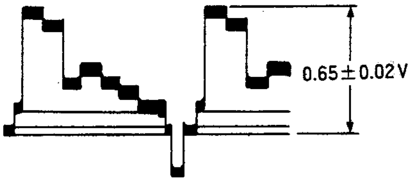
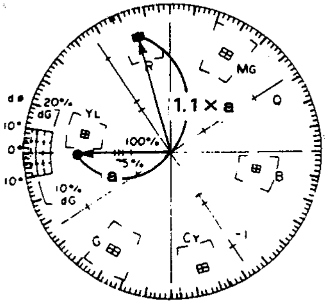
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Indoor R/B OUT setting	•EE	–	–	• 4F (INDOOR R OUT) • 50 (INDOOR B OUT) [E. VR]	**Note:** *Perform this item by the channel 4F of the E. VR adjuster.* 1) Set the channel of the E. VR adjuster to 4F and press the START button. 2) Data set on the channel 4F is displayed on the LED and then data of the channel 50 will be displayed in succession. 3) Press the 'R' button and then set data to 40. 4) Press the 'B' button and then set data to 6D. 5) Press the MEMORY button and confirm that the LED displays 40 and 6D is displayed. 6) Press the END button to finish data setting.
2	Subcarrier balance setting	•EE	–	–	• E4 (R SETUP) • E3 (B SETUP) • EB (YL SETUP) [E. VR]	1) Set data of channels E3, E4 and EB of the E. VR adjuster to '00'. **Note:** *After setting of this item, make sure to perform rough adjustment of YL setup, R/B setup and fine adjustment of R/B setup.*
3	Color offset	•EE	• Iris: Closed  **Fig. 3-3-1** Color offset	• TP102 (AW R-Y) 2 1 VIDEO	• R57 (COLOR OFFSET) 2 1 VIDEO	1) Press the START button of the E. VR adjuster. 2) Manually close the iris. 3) Adjust R57 to minimize average level of waveform at TP102. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
4	Subcarrier balance	•EE	• Iris: Closed  R MG Q dφ 20% dG YL 10° 0° 10° 100% 75% B 10% dG G CY -I **Fig. 3-3-2** Subcarrier balance	• Vectorscope	• R99 (R-Y SC BAL) • R102 (B-Y SC BAL) 2 1 VIDEO	1) Press the START button of the E. VR adjuster. 2) Manually close the iris. 3) Adjust R99 and R102 to center every dot on a vectorscope. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
5	YL setup	•EE	• Iris: Closed  **Fig. 3-3-3** YL setup	• CN108 pin 2 (YL) [2][1] VIDEO	• EB (YL SETUP) [E. VR]	1) Set the channel of the E. VR adjuster to EB and press the START button. 2) Manually close the iris. 3) Reset data of the channel EB of the E. VR adjuster to obtain 5 mV as the setup level. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
6	R/B setup rough adj.	•EE	• Iris: Closed  R MG Q 20% dG YL 10° 0° 10° 100% 75% 10% dG B G CY -I **Fig. 3-3-4** R/B setup rough adjustment	• Vectorscope	• E3 (B SETUP) • E4 (R SETUP) [E. VR]	1) Set the channel of the E. VR adjuster to E4 and press the START button. 2) Manually close the iris. 3) Alternately reset data of the channels E4 and E3 of the E. VR adjuster so that every dot is centered on the vectorconer. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
7	B separation	•EE	• Color bar  **Fig. 3-3-5** B separation	• CN108 pin 3 (R/B) [2][1] VIDEO	• E1 (B SEPARATION) [E. VR]	1) Pick up the color bar. 2) Adjust data of the channel E1 of the E. VR adjuster to equalize yellow level and green level of the blue line.
8	R separation	•EE	• Color bar  **Fig. 3-3-6** R separation	• CN108 pin 3 (R/B) [2][1] VIDEO	• E2 (R SEPARATION) [E. VR]	1) Pick up the color bar. 2) Adjust data of the channel E2 of the E. VR adjuster to equalize cyan level of the blue line and green level of the red line.

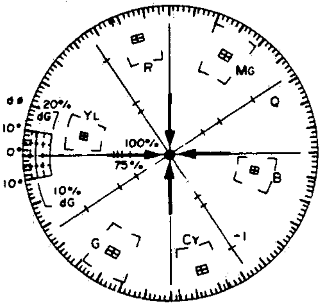
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
9	Color difference offset	•EE	• Iris: Closed  R MG Q YL B G CY -I dφ 20% dG 10° 0° 10° 100% 75% 10% dG **Fig. 3-3-7** Color difference offset	• Vectorscope	• R93 (COLOR DIF. OFFSET) 21 VIDEO	1) Press the START button of the E. VR adjuster. 2) Close the iris manually. 3) Adjust R93 to center every dot on the vectorscope. 4) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
10	R/B gain	•EE	• Gray scale  R MG Q YL B G CY -I dφ 20% dG 10° 0° 10° 100% 75% 10% dG **Fig. 3-3-8** R/B gain	• Vectorscope	• R6 (R GAIN) • R4 (B GAIN) 21 VIDEO	1) Pick up the gray scale. 2) Adjust R6 and R4 to center every dot on the vectorscope.
11	Color difference balance	•EE	• Color bar  R MG Q YL B G CY -I dφ 20% dG 10° 0° 10° 100% 75% 10% dG **Fig. 3-3-9** Color difference balance	• Vectorscope	• R55 (COLOR DIF. BALANCE) 21 VIDEO	1) Pick up the color bar. 2) Adjust R55 to double red dots on the vectorscope.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
12	R/B setup rough adj.	•EE	• Gray scale • Iris: Manual	• CN107 Pin 2 (Y OUT) [2][1] VIDEO		1) Set the channel of the E. VR adjuster to E3 and press the START button. 2) Pick up the gray scale. 3) Manually operate the iris to obtain 0.4 V of signal level at pin 2 of CN107 of the VIDEO board.
			 **Fig. 3-3-10** Y out			
				• Vectorscope	• E3 (R SETUP) • E4 (B SETUP) [E. VR]	4) Alternately adjust data of the channels E4 and E3 of the E. VR adjuster so that every dot is centered on the vectorscope.
			 R MG Q 20% dG YL 10° 0° 10° 100% 75% 10% dG B G CY -I **Fig. 3-3-11** R/B setup fine adjustment - 1			
			• Iris: Auto	• Vectorscope	• R6 (R GAIN) • R4 (B GAIN) [2][1] VIDEO	5) Set the iris to AUTO and adjust R6 and R4 alternately so that every dot is centered on the vectorscope. 6) Repeat the above steps 3) through 5) to satisfy all the requirements. 7) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
			 R MG Q 20% dG YL 10° 0° 10° 100% 75% 10% dG B G CY -I **Fig. 3-3-12** R/B setup fine adjustment - 2			
13	Burst level	•EE	• Lens: Closed	• CN107 pin 4 (C OUT) [2][1] VIDEO	• E7 (BURST LEVEL) [E. VR]	1) Close the lens with the lens cap, and adjust data of the channel E7 of the E. VR adjuster so that burst level at pin 4 of CN107 is 0.29 Vp-p.
			 **Fig. 3-3-13** Burst level			

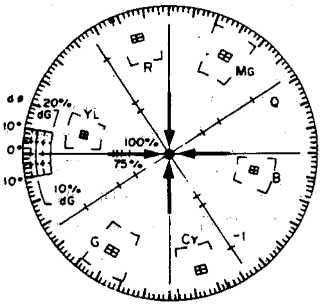
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
14	Burst phase	•EE	• Color bar • Iris: Manual	• CN107 Pin 2 (Y OUT) [2][1] VIDEO		1) Set the channel of the E. VR adjuster to E8 and press the START button. 2) Pick up the color bar. 3) Manually operate the iris so that signal level at pin 2 of CN107 becomes 0.65 V.
			 Fig. 3-3-14 Y out			
				• Vectorscope	• E8 (BURST PHASE) [E. VR]	4) Adjust data of the channel E8 of the E. VR adjuster so that the phase angle of red signal is 104° (phase angle of R) on the vectorscope. 5) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
			 R MG Q 104° 20% dG YL 10° 0° 10° 75% 100% 10% dG B G CY -I Fig. 3-3-15 Burst phase			
15	B-Y gain	•EE	• Color bar • Iris: Manual	• CN107 Pin 2 (Y OUT) [2][1] VIDEO		1) Set the channel of the E. VR adjuster to E5 and press the START button. 2) Pick up the color bar. 3) Manually operate the iris so that signal level at pin 2 of CN107 becomes 0.65 V.
			 Fig. 3-3-16 Y out			
				• Vectorscope	• E5 (B-Y GAIN) [E. VR]	4) Adjust data of the channel E5 of the E. VR adjuster so that phase of red and green is 137° on the vetorscope. 5) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
			 R MG Q 137° 20% dG YL 10° 0° 10° 75% 10% dG B G CY -I Fig. 3-3-17 B-Y gain			

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
16	Color gain	•EE	• Color bar • Iris: Manual	• CN107 Pin 2 (Y OUT) $\boxed{2}\boxed{1}$ VIDEO		1) Set the channel of the E. VR adjuster to E6 and press the START button. 2) Pick up the color bar. 3) Manually operate the iris to obtain 0.65 V of signal level at pin 2 of CN107.
				 Fig. 3-3-18 Y out		
				• Vectorscope	• E6 (CHROMA GAIN) [E. VR]	4) Adjust data of the channel E6 of the E. VR adjuster so that level od red component becomes 1.1 times as high as burst level on the vecorscope. 5) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.
				 R MG Q 1.1×a dφ 20% dG YL 10° 0 10° 100% -5% a B 10% dG G CY -I Fig. 3-3-19 Color gain		

3.3.2 Preset FL (fluorescent light) white balance

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	FL R/B out	• EE	• Gray scale • White bal: FL • Lens: with C8 + CC10Y + CC05R filters  R MG Q dθ 20% dG YL 10° 0° 10° 100% 75% B 10% dG G CY -I **Fig. 3-3-20** FL R/B out	• Vectorscope	• 53 (FL R OUT) • 54 (FL B OUT) [E. VR]	**Note:***Perform this adjustment by the channel of 53.* 1) Pick up the gray scale. 2) Set the white balance switch to FL. 3) Attach filters of C8 + CC10Y + CC05R to the lens. 4) Set the channel of the E. VR adjuster to '53' and press the START button. 5) Adjust data of R gain by the button 'R' and data of B gain by the button 'B' respectively to center dots on the vectorscope. 6) Press the MEMORY button. 7) Press the END button.

3.3.3 Preset outdoor white balance

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Outdoor R/B out	• EE	• Gray scale • White bal: OUTDOOR • Lens: with C12 + CC10B + CC025R filters  R MG Q dθ 20% dG YL 10° 0° 10° 100% 75% B 10% dG G CY -I **Fig. 3-3-21** Outdoor R/B out	• Vectorscope	• 51 (OUTDOOR R OUT) • 52 (OUTDOOR B OUT) [E. VR]	**Note:***Perform this adjustment by the channel of 51.* 1) Pick up the gray scale. 2) Set the white balance switch to OUTDOOR. 3) Attach C12 + CC10B + CC025R filters to the lens. 4) Set the channel of the E. VR adjuster to 51 and press the START button. 5) Adjust data of R gain by the button 'R' and data of B gain by the button 'B' respectively to center dots on the vectorscope. 6) Press the MEMORY button. 7) Press the END button.

3.3.4 Auto white balance

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	R/G, B/G offset setting	•EE	• White sensor: 3100 K, with CC10B Filter • White bal: Auto	–	• 40 (R/G, B/G OFF-SET) [E. VR]	1) Apply 3100 K light to the white sensor which CC10B filter are attached to. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '40', and press the MEMORY button.
2	Indoor R/G, B/G setting	•EE	• White sensor: 3100 K, with CC10B Filter • White bal: Auto	–	• 42 (IN-DOOR R/G) • 43 (IN-DOOR B/G) [E. VR]	1) Apply 3100 K light to the white sensor which CC10B filter are attached to. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '42', and press the MEMORY button. 4) Set the channel of the E. VR adjuster to '43', and press the MEMORY button.
3	G offset setting	•EE	• White sensor: 3100 K • White bal: Auto	–	• 48 (G OFFSET) [E. VR]	1) Apply 3100 K light to the white sensor which CC10B filter are attached to. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '48', and press the MEMORY button.
4	FL R/G, B/G setting	•EE	• White sensor: 3100 K, with C10 + CC25Y filters • White bal: Auto	–	• 46 (FL R/G) • 47 (FL B/G) [E. VR]	1) Apply 3100 K light to the white sensor which C10 + CC25Y filters are arrached to. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '46', and press the MEMORY button. 4) Set the channel of the E. VR adjuster to '47', and press the MEMORY button.
5	Outdoor R/G, B/G setting	•EE	• White sensor: 3100 K, with C12 filter • White bal: Auto	–	• 44 (OUT-DOOR R/G) • 45 (OUT-DOOR B/G) [E. VR]	1) Apply 3100 K light to the white sensor which C12 filter is attached to. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '44', and press the MEMORY button. 4) Set the channel of the E. VR adjuster to '45', and press the MEMORY button.
6	R-Y/B-Y offset setting	•EE	• Gray scale • White bal: Auto	–	• 49 (R-Y OFFSET -1) • 4A (B-Y OFFSET -1) • 4C (R-Y OFFSET -2) • 4D (B-Y OFFSET -2) [E. VR]	1) Pick up the gray scale. 2) Set the white balance switch to AUTO. 3) Set the channel of the E. VR adjuster to '49', and press the MEMORY button. 4) Perform the same steps mentioned above for channels 4A, 4C and 4D respectively.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
7	Y_L offset setting	•EE	• Iris: Closed • White bal: Auto	—	• 4B (Y_L OFFSET -1) • 4E (Y_L OFFSET -2) [E. VR]	1) Set the channel of the E. VR adjuster to 4B and press the START button. 2) Close the iris manually. 3) Set the white balance switch to AUTO. 4) Press the MEMORY button. 5) Set the channel of the E. VR adjuster to '4E' and press the MEMORY button. 6) Set to the AUTO IRIS mode and press the END button of E. VR adjuster.

3.4 AUTO FOCUS ADJUSTMENT

3.4.1 Connection for adjustment

- Set the test pattern 2.4 ± 0.06 m apart from the lens or focus the lens on an infinite object.

Connector	No. of Pin	Connection
①	3	03 JACK CN2 ↔ 22 IMAGER CN201
②	8	02 A/V CN6 ↔ 21 VIDEO CN107
③	8	01 MAIN CN8 ↔ 23 CTL CN305
④	16	01 MAIN CN10 ↔ OPERATION UNIT

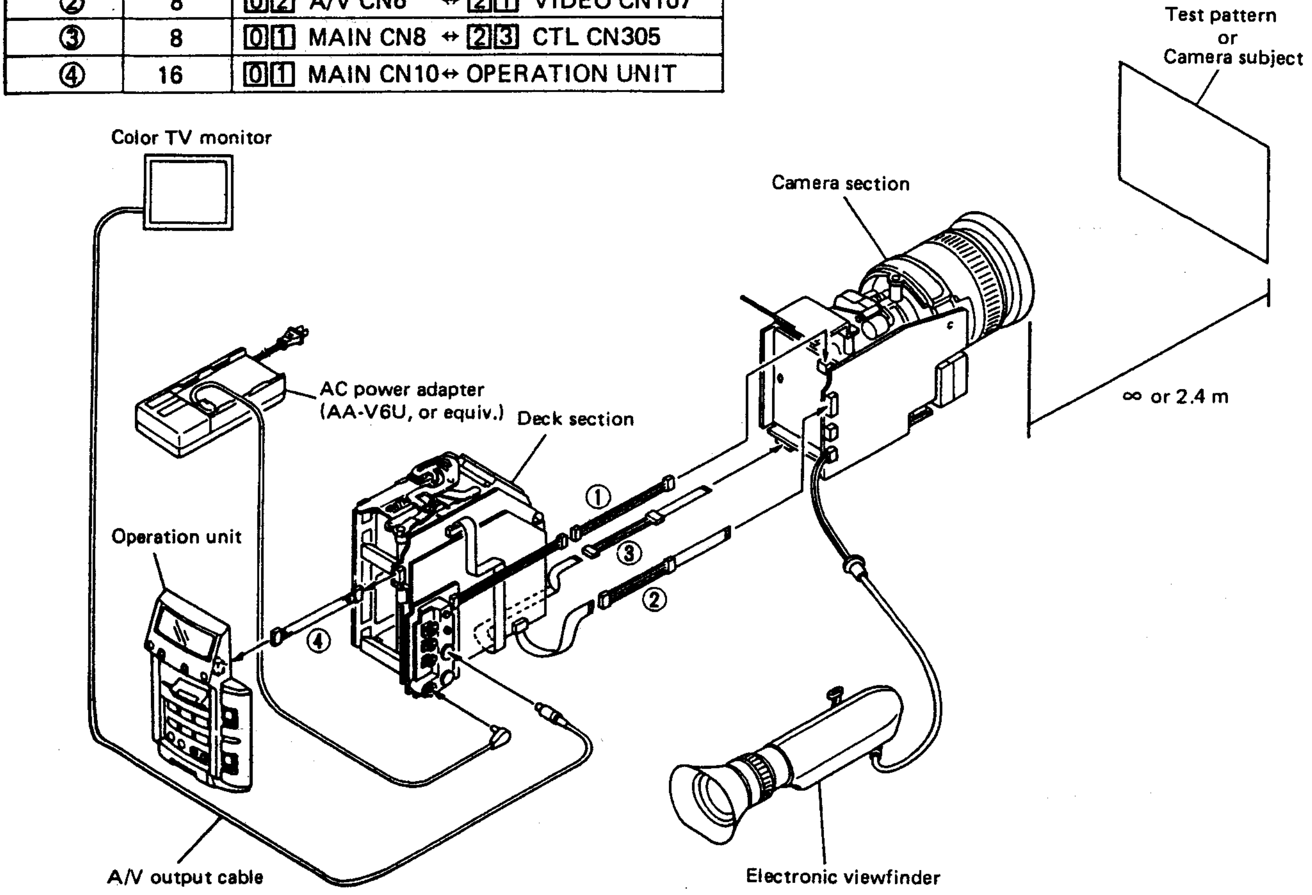

Test pattern
or
Camera subject
Color TV monitor
Camera section
AC power adapter
(AA-V6U, or equiv.)
Deck section
∞ or 2.4 m
①
③
②
④
Operation unit
A/V output cable
Electronic viewfinder

Fig. 3-4-1 Connection for auto focus adjustment

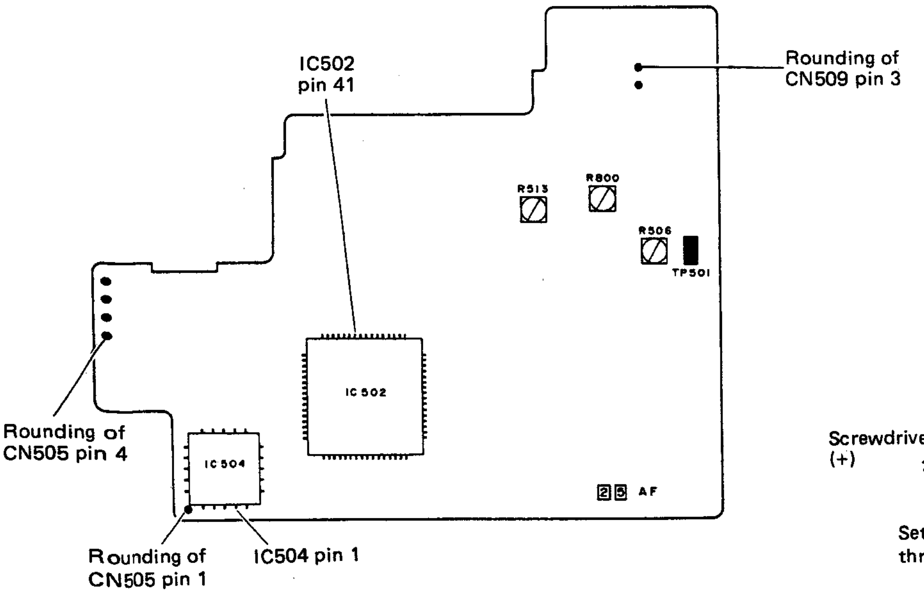

IC502
pin 41
Rounding of
CN509 pin 3
R513
R800
R506
TP501
IC502
Rounding of
CN505 pin 4
IC504
25 AF
Rounding of
CN505 pin 1
IC504 pin 1

Fig. 3-4-2 Parts location on AF board

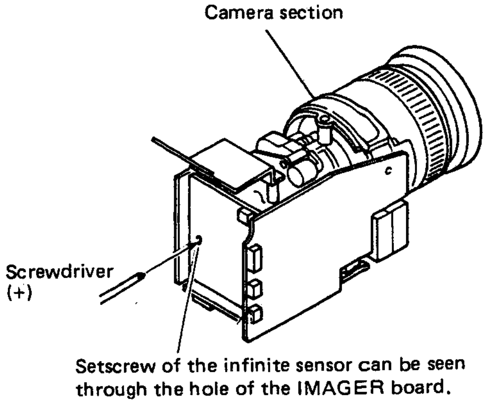
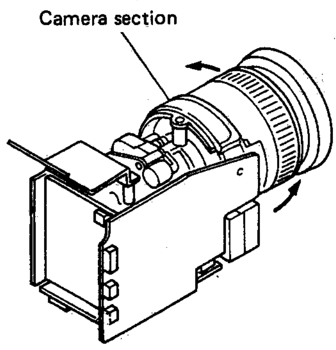

Camera section
Screwdriver
(+)
Setscrew of the infinite sensor can be seen
through the hole of the IMAGER board.

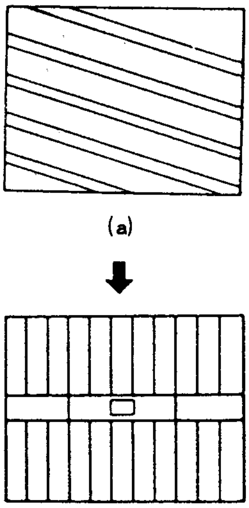
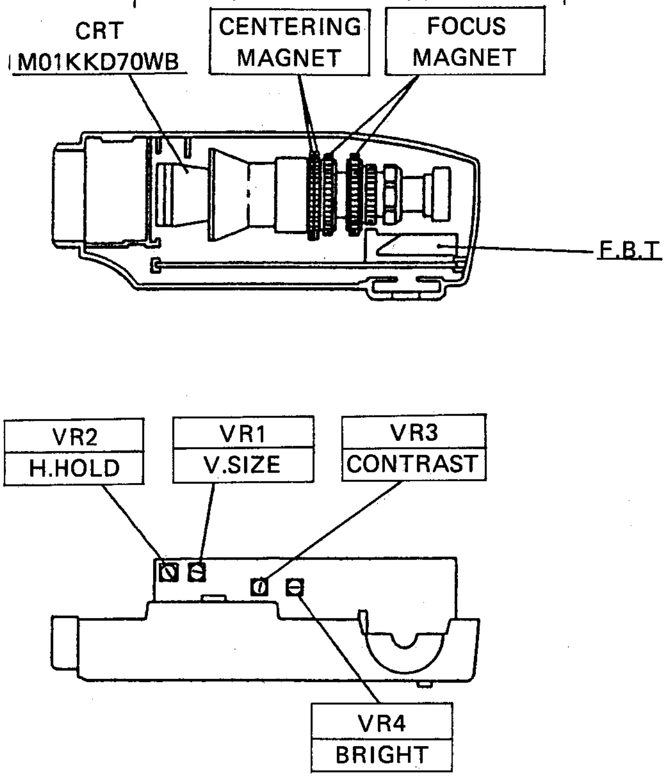
Fig. 3-4-3 Setscrew of infinite sensor

3.4.2 Adjustment

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Confirmation	•EE	• Subject 80 m or more apart	•CN509 Pin 3 (PHOTO TR IN) $\boxed{2}\boxed{5}$ AF	–	1) Turn off the power and ground pin 41 of IC502. 2) Turn on the power and set the camera to the Rehearsal mode. Shooting a camera object 80 m or more apart from the camera, confirm that the subject is in focus and voltage at pin 3 of CN509 is 2.22 ± 0.05 V. 3) Shooting an object in a distance of 2–3 m by zooming from the TELE position to the WIDE position a few times, confirm the image which has no extreme out-focus points.
2A	Auto focus	•EE	•Subject 80 m or more apart •ND filter •Zoom SW: WIDE end • Focus: MANUAL	•CN509 Pin 3 (PHOTO TR IN) $\boxed{2}\boxed{5}$ AF	• Infinite sensor	1) Turn off the power and ground pin 41 of CN502. 2) Turn on the power and set the mode to Rehearsal. Shoot a camera subject 80 m or apart from it. 3) Set the focus switch to MANUAL. 4) Attach a proper ND filter(s) so that the iris is full open. 5) Set the zoom switch to the endmost of the WIDE side. 6) Observing a TV monitor, turn the manual focus ring to bring the subject into focus. 7) Adjust the setscrew of the infinite sensor so that voltage at pin 3 of CN509 is 2.22 ± 0.05 V.
2B	Easy auto focusing	•EE	•Subject in a distance of 2.4 ± 0.06 m •ND filter(s) •Zoom SW: WIDE end • Focus: MANUAL  **Fig. 3-4-4** Turning direction of focus ring	•CN509 Pin 3 (PHOTO TR IN) $\boxed{2}\boxed{5}$ AF	• Infinite sensor	1) Turn off the power and ground pin 41 of CN-502 and pin 1 of IC504. 2) Turn on the power and shoot an object 80 m or more apart in the Rehearsal mode. 3) Set the focus switch to MANUAL. 4) Attach proper ND filter(s) to the lens so that the iris is full open. 5) Set the zoom switch to the endmost of WIDE side. 6) Observing a TV monitor, turn the manual focus ring to bring the subject into focus. 7) When it is in focus, turn the manual focus ring in the direction of the arrow (Fig. 3-4-4) for 1 pulse (see Note). 8) Adjust the setscrew of the infinite sensor so that voltage at pin 3 of CN509 is 2.22 ± 0.05 V. **Note:** *To turn the manual focus ring for 1 pulse: Shortcircuit between pin 1 of CN505 and CH1 of an oscilloscope while pin 4 and CH2 respectively, and set the oscilloscope to dual-trace DC mode. As the manual focus ring is turned in the direction of the arrow, level of CH1 or CH2 varies from high to low or vice versa. This explains that the focus moves for 1 pulse.*

3.5 ELECTRONIC VIEWFINDER

Note: *Be most careful of high voltage at the anode of CRT, HV module, etc.*

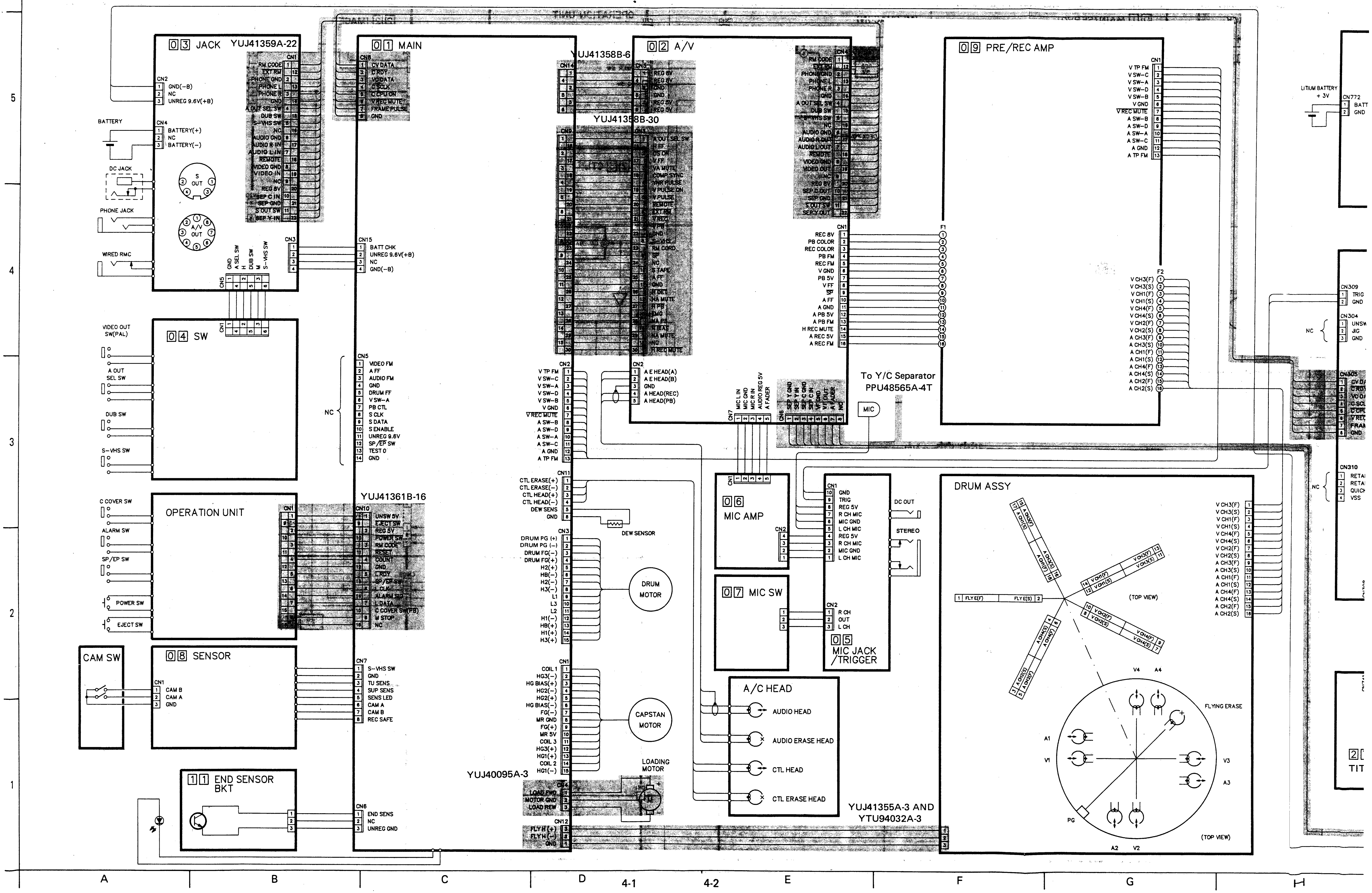
<table>
<tr><th>No.</th><th>Item</th><th></th><th>Signal
& Setting</th><th>Measurement Point</th><th>Adjustment Parts</th><th>Adjustment Procedure</th></tr>
<tr><td rowspan="2">1</td><td>Horizontal sync.</td><td>• EE</td><td>• Gray scale</td><td>• Viewfinder</td><td>• VR2
(H. HOLD)
$\boxed{5}\boxed{0}$ VF</td><td rowspan="2">1) Observing image in the viewfinder screen, turn VR2 fully clockwise to make the picture unstable.
2) Gradually return VR2 counterclockwise until the picture becomes stable. At that time, mark the VR's position for further reference.
3) In the same manner as the above steps 1) and 2), turn VR2 clockwise and return it to mark a point where the picture becomes stable again.
4) Finally set VR2 to the midpoint of the two markings.

(a)
(b)
• It is the correct setting position of VR2 that DC level of pin 12 of IC1 is 2.5 V (in Shuttle Search).</td></tr>
<tr><td colspan="5">

CRT
M01KKD70WB
CENTERING MAGNET
FOCUS MAGNET
F.B.T
VR2 H.HOLD
VR1 V.SIZE
VR3 CONTRAST
VR4 BRIGHT

Fig. 3-5-1 Electronic viewfinder</td></tr>
<tr><td>2</td><td>Vertical scanning</td><td>• EE</td><td>• Gray scale</td><td>• Viewfinder</td><td>• VR1
(V. SIZE)
$\boxed{5}\boxed{0}$ VF</td><td>1) Observing image in the viewfinder, adjust VR1 for normal picture amplitude.</td></tr>
<tr><td>3</td><td>Centering</td><td>• EE</td><td>• Gray scale</td><td>• Viewfinder</td><td>• Centering magnet</td><td>1) Pick up the gray scale to locate it in the center of the TV monitor screen, and adjust the centering magnet so that the picked up gray scale pattern is positioned in the center of the viewfinder.</td></tr>
<tr><td>4</td><td>Focus</td><td>• EE</td><td>• Gray scale</td><td>• Viewfinder</td><td>• Focus magnet</td><td>1) Observing image in the viewfinder, adjust the focus magnet of the deflection yoke to obtain a clear image of the center of the gray scale.</td></tr>
<tr><td>5</td><td>Brightness</td><td>• EE</td><td>• Iris: Closed (with lens cap)</td><td>• Viewfinder</td><td>• VR4
(BRIGHT)
$\boxed{5}\boxed{0}$ VF</td><td>1) Close the iris with the lens cap and adjust VR4 so that the CRT raster of the viewfinder is just barely visible.</td></tr>
<tr><td>6</td><td>Contrast</td><td>• EE</td><td>• Gray scale</td><td>• Viewfinder</td><td>• VR3
(CONT)
$\boxed{5}\boxed{0}$ VF</td><td>1) Observing image in the viewfinder, adjust VR3 so that gradation of the gray scale becomes the best.</td></tr>
</table>

SECTION 4
OVERALL WIRING AND BLOCK DIAGRAMS

4.1 OVERALL WIRING



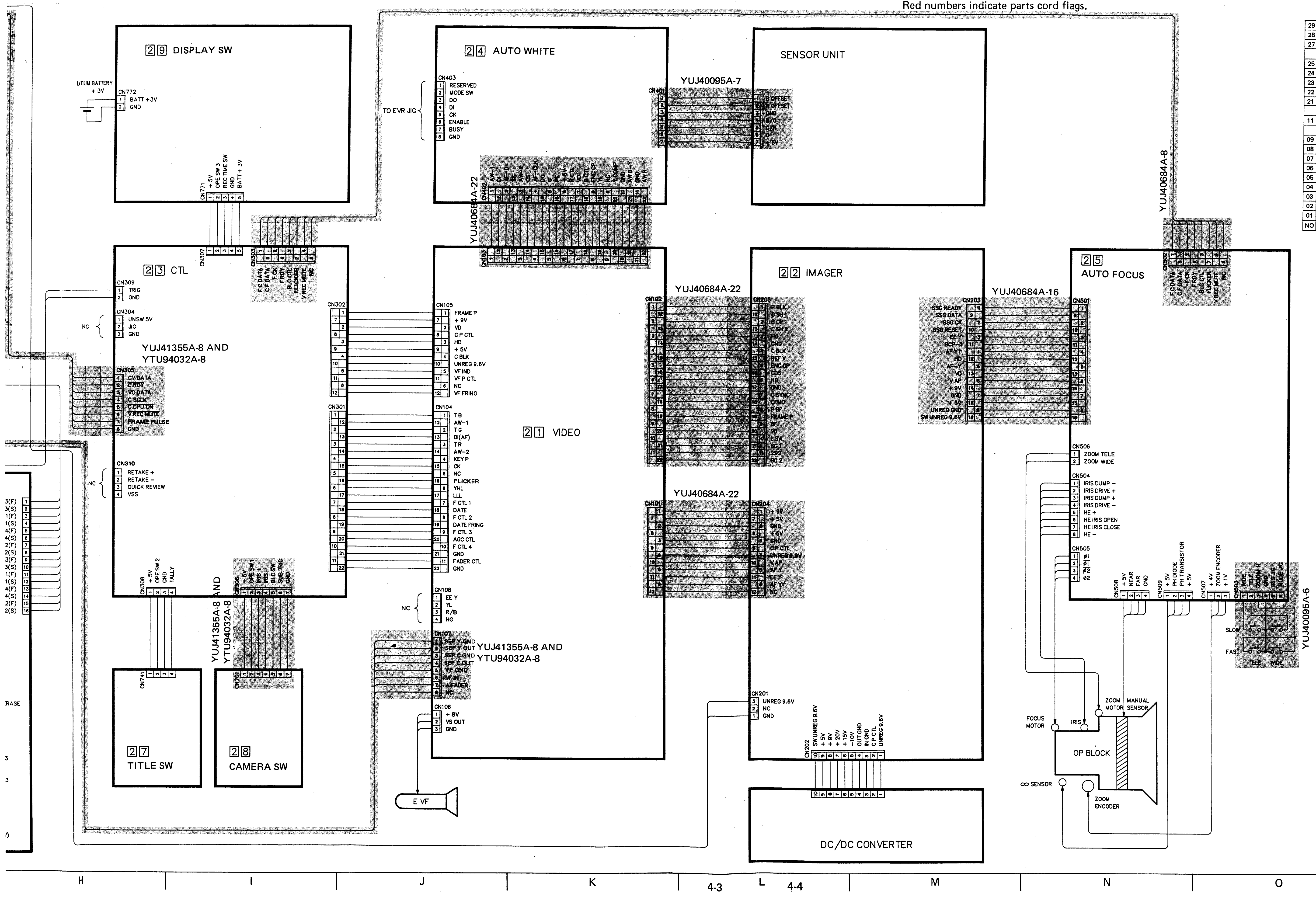
03 JACK YUJ41359A-22
CN2 GND(−B) NC UNREG 9.6V(+B)
BATTERY
CN4 BATTERY(+) NC BATTERY(−)
DC JACK
S OUT
A/V OUT
PHONE JACK
WIRED RMC
CN3
CN5 GND A SEL SW H DUB SW M S−VHS SW
04 SW
VIDEO OUT SW(PAL)
A OUT SEL SW
DUB SW
S−VHS SW
OPERATION UNIT
C COVER SW
ALARM SW
SP/EP SW
POWER SW
EJECT SW
CAM SW
08 SENSOR
CN1 CAM B CAM A GND
11 END SENSOR BKT
01 MAIN
YUJ41358B-6
YUJ41358B-30
YUJ41361B-16
YUJ40095A-3
CN15 BATT CHK UNREG 9.6V(+B) NC GND(−B)
CN5 VIDEO FM A FF AUDIO FM GND DRUM FF V SW−A PB CTL S CLK S DATA S ENABLE UNREG 9.6V SP/EP SW TEST 0 GND
NC
CN7 S−VHS SW GND TU SENS SUP SENS SENS LED CAM A CAM B REC SAFE
CN6 END SENS NC UNREG GND
CN2 V TP FM V SW−C V SW−A V SW−D V SW−B V GND V REC MUTE A SW−B A SW−D A SW−A A SW−C A GND A TP FM
CN11 CTL ERASE(+) CTL ERASE(−) CTL HEAD(+) CTL HEAD(−) DEW SENS GND
DEW SENSOR
CN3 DRUM PG (+) DRUM PG (−) DRUM FG(−) DRUM FG(+) H2(+) HB(−) H2(−) H3(−) L1 L3 L2 H1(−) HB(+) H1(+) H3(+)
DRUM MOTOR
CN1 COIL 1 HG3(−) HG BIAS(+) HG2(−) HG2(+) HG BIAS(−) FG(−) MR GND FG(+) MR 5V COIL 3 HG3(+) HG1(+) COIL 2 HG1(−)
CAPSTAN MOTOR
LOADING MOTOR
CN4 LOAD FWD MOTOR GND LOAD REW
CN12 FLY H(+) FLY H(−) GND
02 A/V
CN2 A E HEAD(A) A E HEAD(B) GND A HEAD(REC) A HEAD(PB)
CN7 MIC L IN MIC GND MIC R IN AUDIO REG 5V A FADER
CN1 REC 8V PB COLOR REC COLOR PB FM REC FM V GND PB 5V V FF SP A FF A GND A PB 5V A PB FM H REC MUTE A REC 5V A REC FM
To Y/C Separator PPU48565A-4T
MIC
06 MIC AMP
07 MIC SW
05 MIC JACK /TRIGGER
CN1 GND TRIG REG 5V R CH MIC MIC GND L CH MIC REG 5V R CH MIC MIC GND L CH MIC
CN2 R CH OUT L CH
DC OUT
STEREO
A/C HEAD
AUDIO HEAD
AUDIO ERASE HEAD
CTL HEAD
CTL ERASE HEAD
YUJ41355A-3 AND YTU94032A-3
09 PRE/REC AMP
CN1 V TP FM V SW−C V SW−A V SW−D V SW−B V GND V REC MUTE A SW−B A SW−D A SW−A A SW−C A GND A TP FM
F1
F2 V CH3(F) V CH3(S) V CH1(F) V CH1(S) V CH4(F) V CH4(S) V CH2(F) V CH2(S) A CH3(F) A CH3(S) A CH1(F) A CH1(S) A CH4(F) A CH4(S) A CH2(F) A CH2(S)
DRUM ASSY
(TOP VIEW)
FLYING ERASE
V4 A4 A1 V1 V3 A3 PG A2 V2
LITIUM BATTERY + 3V
CN772 BATT GND
CN309 TRIG GND
CN304 UNSW JIG GND
CN305
CN310 RETAI RETAI QUICK VSS
6 5 4 3 2 1
A B C D E F G H

Patchcords

Patchcords are available for blue shaded portions of the overall wiring.

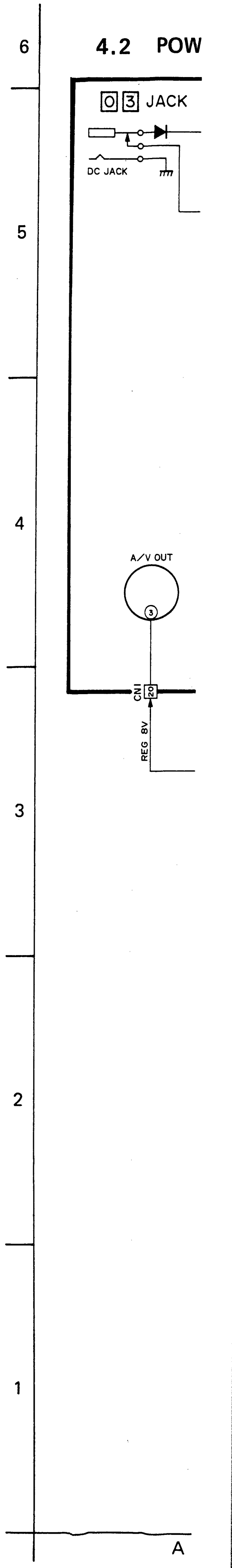
Red numbers indicate parts cord flags.

29	DISPLAY SW
28	CAMERA SW
27	TITLE SW
25	AUTO FOCUS
24	AUTO WHITE
23	CTL
22	IMAGER
21	VIDEO
11	END SENSOR BKT
09	PRE/REC AMP
08	SENSOR
07	MIC SW
06	MIC AMP
05	MIC JACK/TRIGGER
04	SW
03	JACK
02	A/V
01	MAIN
NO	PWB NAME

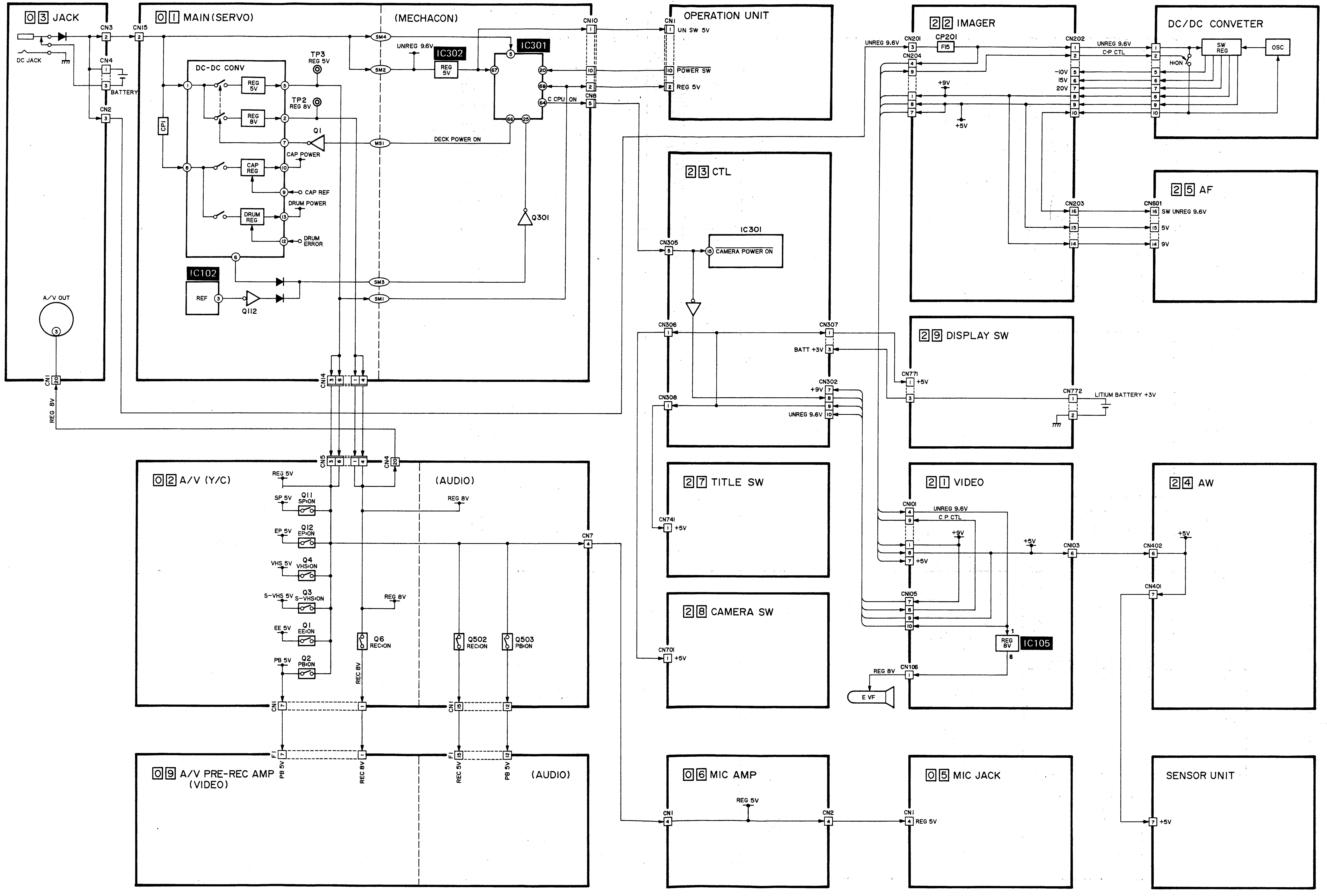


29 DISPLAY SW
LITIUM BATTERY + 3V
CN772 1 BATT +3V 2 GND
CN771 1 + 5V 2 OPE SW 3 3 REC TIME SW 4 GND 5 BATT + 3V
24 AUTO WHITE
TO EVR JIG
CN403 1 RESERVED 2 MODE SW 3 DO 4 DI 5 CK 6 ENABLE 7 BUSY 8 GND
CN402 AW−1 DI AF−DI SK AW−2 CS AF−CLK DO G PE + 5V R CTL VD B CTL ENC CP YL NC Y COMP GND AW B−Y GND AW R−Y
YUJ40684A-22
CN103
SENSOR UNIT
YUJ40095A-7
CN401
B OFFSET
R OFFSET
GND
B/G
G/R
G
+ 5V
23 CTL
CN307
CN303 F C DATA C F DATA F CK F RDY BLC CTL FLICKER V REC MUTE NC
CN309 1 TRIG 2 GND
CN304 1 UNSW 5V 2 JIG 3 GND
NC
YUJ41355A-8 AND YTU94032A-8
CN305 1 CV DATA 2 C RDY 3 VC DATA 4 C SCLK 5 C CPU ON 6 V REC MUTE 7 FRAME PULSE 8 GND
CN310 1 RETAKE + 2 RETAKE − 3 QUICK REVIEW 4 VSS
CN302
CN301
CN308 1 + 5V 2 OPE SW 2 3 GND 4 TALLY
CN306 1 + 5V 2 OPE SW 1 3 IRIS + 4 IRIS − 5 BLC SW 6 SUB TRIG 7 GND
YUJ41355A-8 AND YTU94032A-8
CN741
CN701
27 TITLE SW
28 CAMERA SW
21 VIDEO
CN105 FRAME P + 9V VD C P CTL HD + 5V C BLK UNREG 9.6V VF IND VF P CTL NC VF FRING
CN104 TB AW−1 TG DI(AF) TR AW−2 KEY P CK NC FLICKER YHL LLL F CTL 1 DATE F CTL 2 DATE FRING F CTL 3 AGC CTL F CTL 4 GND FADER CTL GND
CN108 1 EE Y 2 YL 3 R/B 4 HG
CN107 1 SEP Y GND 2 SEP Y OUT 3 SEP C GND 4 SEP C OUT 5 VF GND 6 VF IN 7 A FADER 8 NC
YUJ41355A-8 AND YTU94032A-8
CN106 1 + 8V 2 VS OUT 3 GND
E VF
YUJ40684A-22
CN102
CN205 P BLK C SH 1 B CP 1 C SH 2 HG GND C BLK REF V ENC CP CDS HD GND C SYNC CFMO P BF FRAME P BF VD L SW SC 1 2SC SC 2
YUJ40684A-22
CN101
CN204 + 9V + 5V GND + 5V GND C P CTL UNREG 9.6V V AP AF Y EE Y AF YT NC
22 IMAGER
CN201 3 UNREG 9.6V 2 NC 1 GND
CN202 10 SW UNREG 9.6V 9 + 5V 8 + 9V 7 + 20V 6 + 15V 5 −10V 4 OUT GND 3 IN GND 2 C P CTL 1 UNREG 9.6V
DC/DC CONVERTER
CN203 SSG READY SSG DATA SSG CK SSG RESET EE Y BCP−1 AF YT HD AF−Y VD V AP + 9V GND + 5V UNREG GND SW UNREG 9.6V
YUJ40684A-16
25 AUTO FOCUS
CN501
YUJ40684A-8
CN502 F C DATA C F DATA F CK F RDY BLC CTL FLICKER V REC MUTE NC
CN506 1 ZOOM TELE 2 ZOOM WIDE
CN504 1 IRIS DUMP − 2 IRIS DRIVE + 3 IRIS DUMP + 4 IRIS DRIVE − 5 HE + 6 HE IRIS OPEN 7 HE IRIS CLOSE 8 HE −
CN505 1 ø1 2 ø1 3 ø2 4 ø2
CN508 1 + 5V 2 NEAR 3 FAR 4 GND
CN509 1 + 5V 2 PH DIODE 3 PH TRANSISTOR 4 + 5V
CN507 1 + 4V 2 ZOOM ENCODER 3 + 1V
CN503 1 WIDE 2 TELE 3 ZOOM H 4 GND 5 IRIS JIG 6 MODE JIG
YUJ40095A-6
SLOW
FAST
TELE
WIDE
FOCUS MOTOR
IRIS
ZOOM MOTOR
MANUAL SENSOR
OP BLOCK
∞ SENSOR
ZOOM ENCODER
3(F)
3(S)
1(F)
1(S)
4(F)
4(S)
2(F)
2(S)
3(F)
3(S)
1(F)
1(S)
4(F)
4(S)
2(F)
2(S)
RASE
H
I
J
K
L
M
N
O

4.2 POW

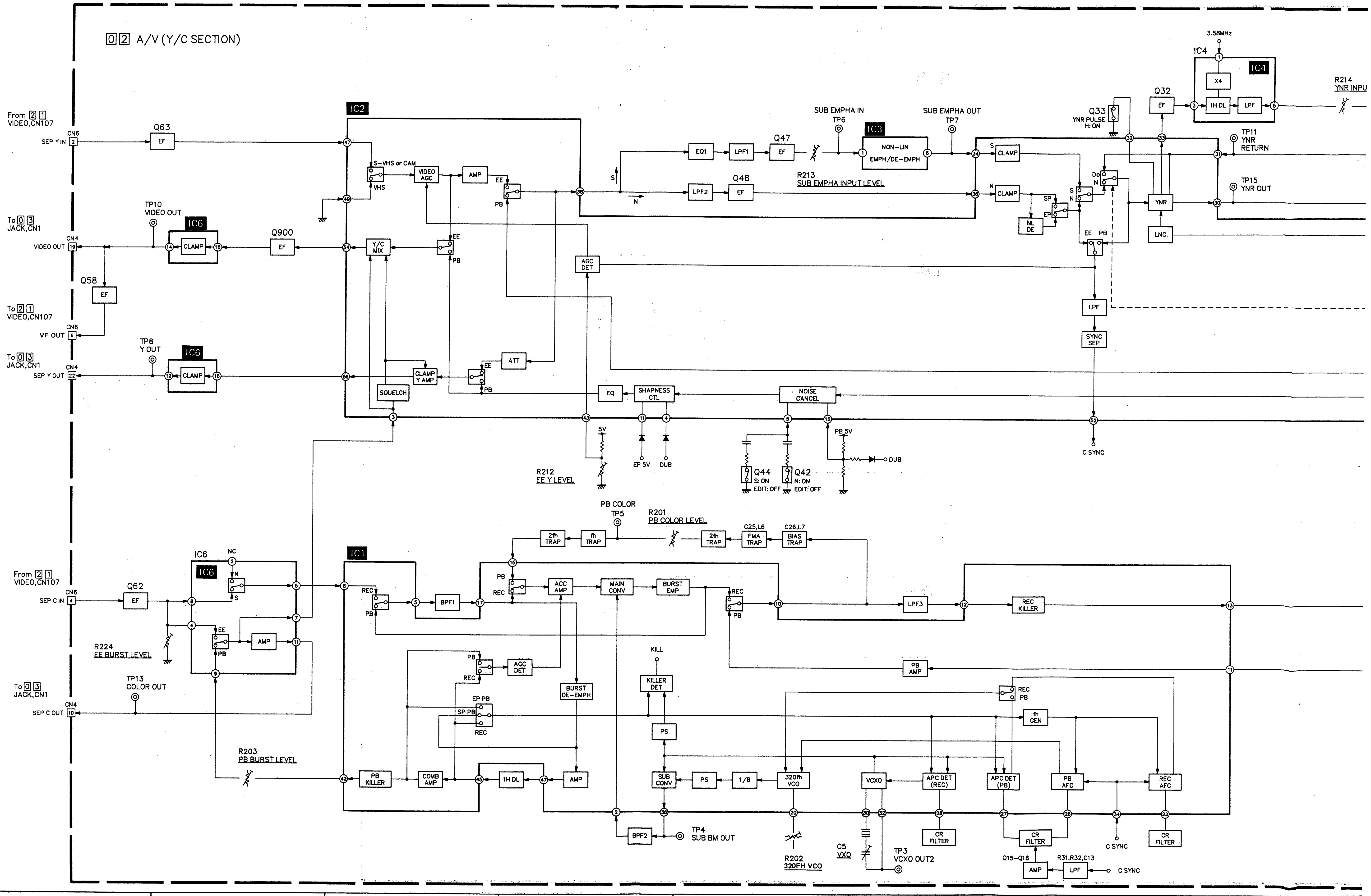

6
03 JACK
DC JACK
5
4
A/V OUT
3
CN1
20
REG 8V
3
2
1
A

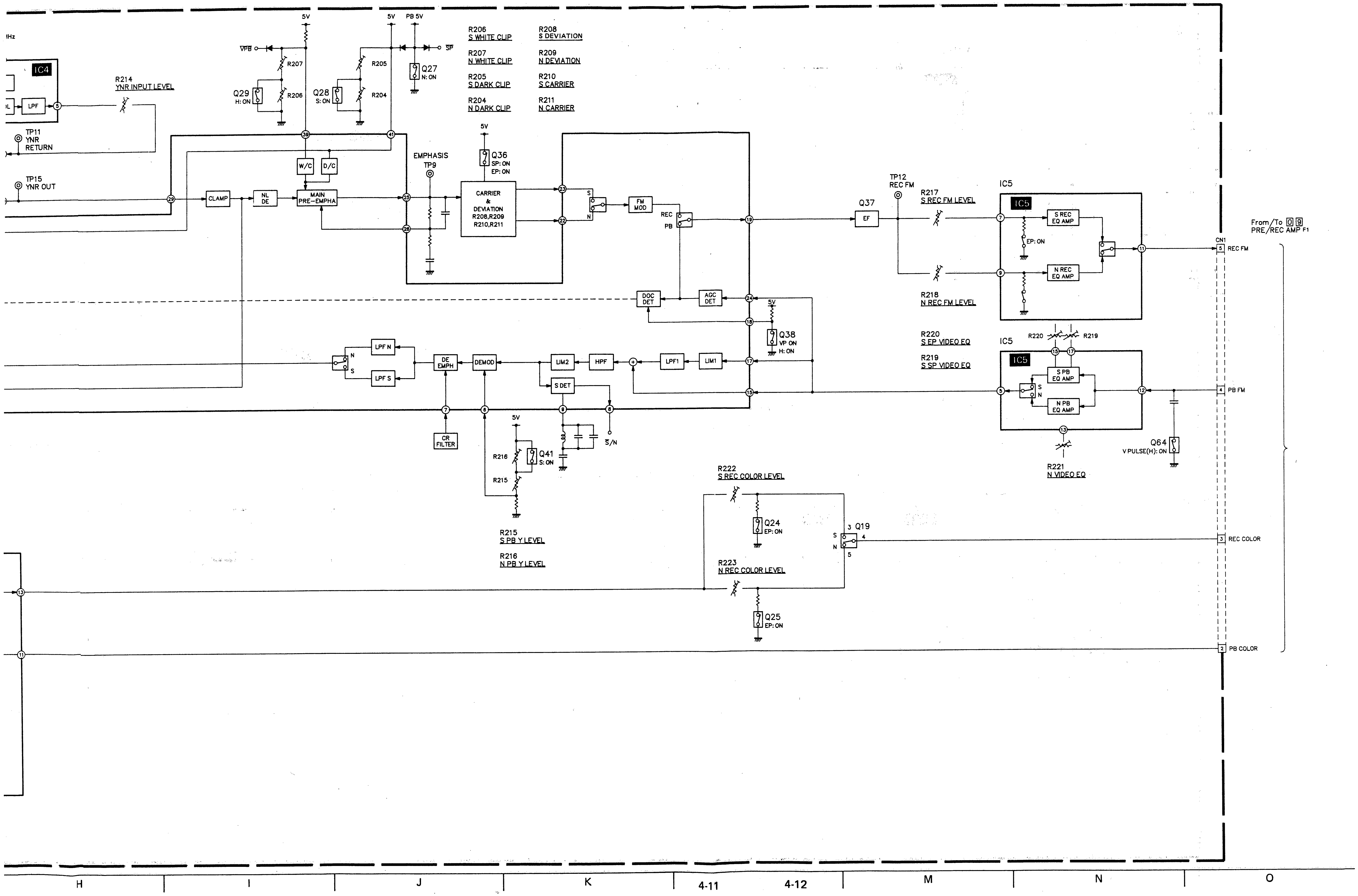
4.2 POWER SYSTEM BLOCK DIAGRAMS



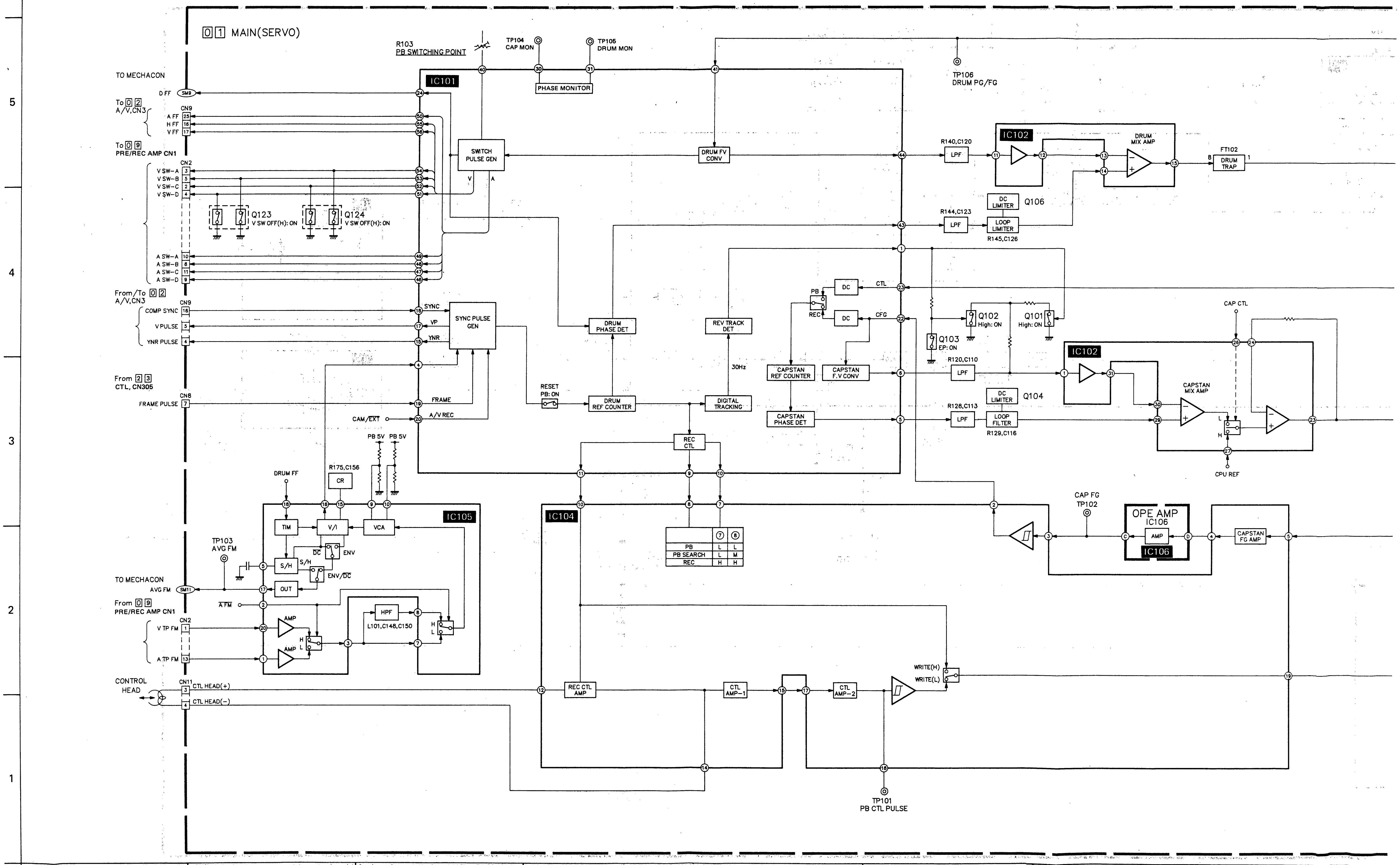
03 JACK
DC JACK
CN3
CN4
BATTERY
CN2
A/V OUT
CN1
REG 8V
01 MAIN (SERVO)
(MECHACON)
CN15
DC-DC CONV
REG 5V
REG 8V
CAP REG
DRUM REG
CP1
TP3 REG 5V
TP2 REG 8V
Q1
CAP POWER
CAP REF
DRUM POWER
DRUM ERROR
UNREG 9.6V
IC302
REG 5V
IC301
SM4
SM2
MS1
SM3
SM1
DECK POWER ON
C CPU ON
Q301
IC102
REF
Q112
CN10
CN8
CN14
OPERATION UNIT
CN1
UN SW 5V
POWER SW
REG 5V
02 A/V (Y/C)
(AUDIO)
CN5
CN4
REG 5V
SP 5V
Q11 SP:ON
EP 5V
Q12 EP:ON
VHS 5V
Q4 VHS:ON
S-VHS 5V
Q3 S-VHS:ON
EE 5V
Q1 EE:ON
PB 5V
Q2 PB:ON
REG 8V
Q6 REC:ON
REC 8V
Q502 REC:ON
Q503 PB:ON
CN7
CN1
09 A/V PRE-REC AMP (VIDEO)
(AUDIO)
F1
PB 5V
REC 8V
REC 5V
PB 5V
23 CTL
CN305
IC301
CAMERA POWER ON
CN306
CN307
BATT +3V
CN302
+9V
UNREG 9.6V
CN308
27 TITLE SW
CN741 +5V
28 CAMERA SW
CN701 +5V
06 MIC AMP
REG 5V
CN1
CN2
05 MIC JACK
CN1 REG 5V
22 IMAGER
UNREG 9.6V
CN201
CN204
CP201
F15
CN202
UNREG 9.6V
C·P CTL
-10V
15V
20V
+9V
+5V
CN203
DC/DC CONVETER
SW REG
OSC
H:ON
25 AF
CN501
SW UNREG 9.6V
5V
9V
29 DISPLAY SW
CN771 +5V
CN772
LITIUM BATTERY +3V
21 VIDEO
CN101
UNREG 9.6V
C P CTL
+9V
+5V
CN103
CN105
REG 8V
IC105
CN106
REG 8V
E VF
24 AW
CN402
+5V
CN401
SENSOR UNIT
+5V

4.3 Y/C BLOCK DIAGRAM

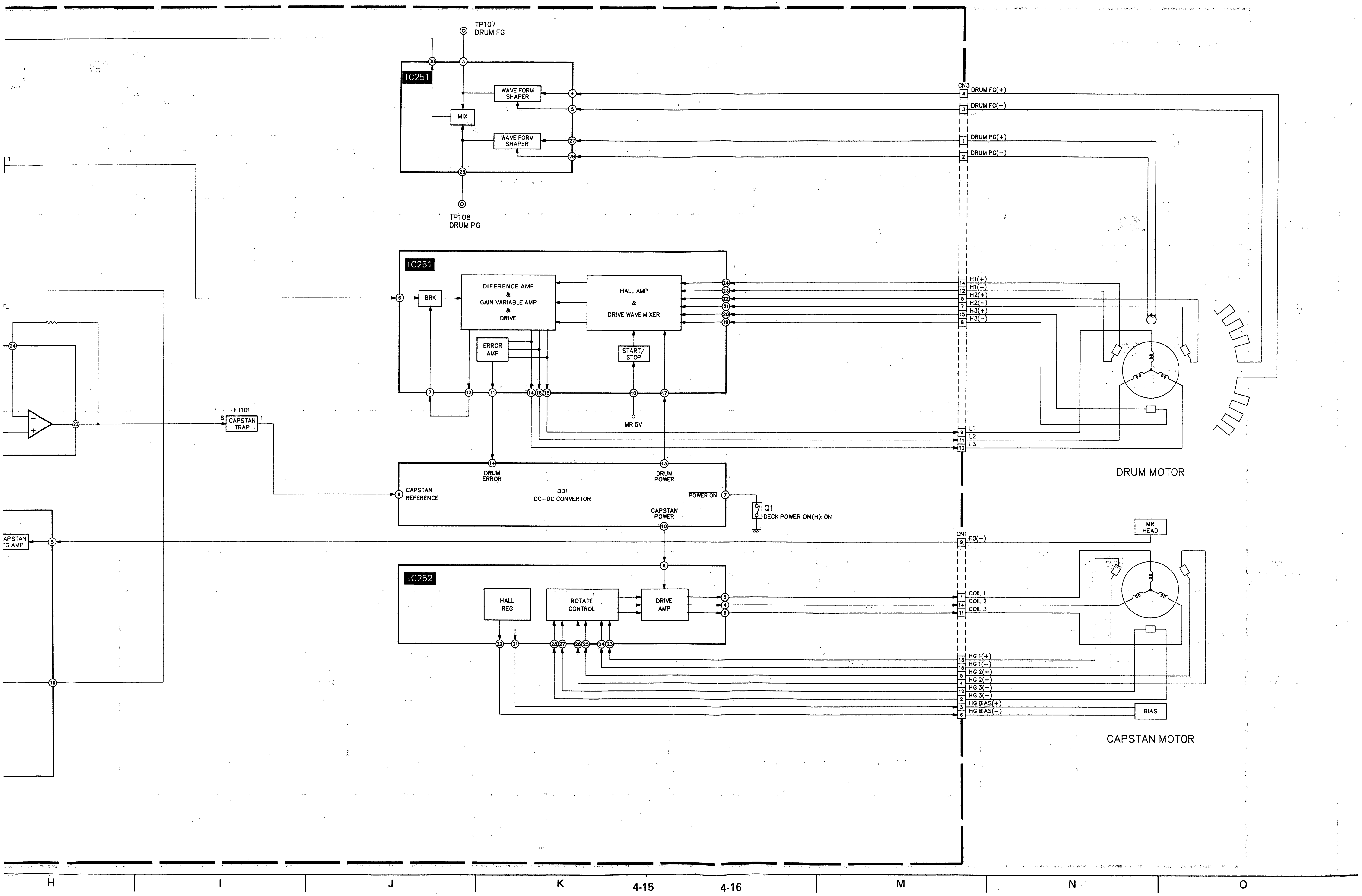

02 A/V (Y/C SECTION)
From 2 1 VIDEO,CN107
CN6
SEP Y IN 2
Q63
EF
IC2
S-VHS or CAM
VHS
VIDEO AGC
AMP
EE
PB
47
48
38
TP10 VIDEO OUT
IC6
To 0 3 JACK,CN1
CN4
VIDEO OUT 19
CLAMP
14
18
Q900
EF
54
Y/C MIX
EE
PB
AGC DET
Q58
EF
To 2 1 VIDEO,CN107
CN6
VF OUT 6
TP8 Y OUT
IC6
To 0 3 JACK,CN1
CN4
SEP Y OUT 22
CLAMP
12
16
56
CLAMP Y AMP
ATT
EE
PB
SQUELCH
EQ
SHAPNESS CTL
NOISE CANCEL
3
43
11
4
5
12
5V
R212 EE Y LEVEL
EP 5V
DUB
Q44 S: ON EDIT: OFF
Q42 N: ON EDIT: OFF
PB 5V
DUB
S
N
EQ1
LPF1
Q47
EF
LPF2
Q48
EF
SUB EMPHA IN TP6
IC3
1
NON-LIN EMPH/DE-EMPH
6
SUB EMPHA OUT TP7
R213 SUB EMPHA INPUT LEVEL
34
S
CLAMP
36
N
CLAMP
SP
EP
NL DE
S
N
Do
N
EE PB
LPF
SYNC SEP
52
C SYNC
Q33 YNR PULSE H: ON
32
Q32
EF
33
3.58MHz
IC4
1
X4
IC4
3
1H DL
LPF
5
R214 YNR INPU
TP11 YNR RETURN
31
YNR
30
TP15 YNR OUT
LNC
From 2 1 VIDEO,CN107
CN6
SEP C IN 4
Q62
EF
IC6
NC
2
IC6
N
S
5
8
4
EE
PB
AMP
7
11
9
R224 EE BURST LEVEL
To 0 3 JACK,CN1
TP13 COLOR OUT
CN4
SEP C OUT 10
R203 PB BURST LEVEL
IC1
8
REC
PB
5
BPF1
17
15
PB
REC
ACC AMP
MAIN CONV
BURST EMP
REC
PB
10
LPF3
12
REC KILLER
13
2fh TRAP
fh TRAP
PB COLOR TP5
R201 PB COLOR LEVEL
2fh TRAP
C25,L6 FMA TRAP
C26,L7 BIAS TRAP
PB
REC
ACC DET
BURST DE-EMPH
EP PB
SP PB
REC
KILL
KILLER DET
PS
PB AMP
11
REC PB
fh GEN
42
PB KILLER
COMB AMP
45
1H DL
47
AMP
SUB CONV
PS
1/8
320fh VCO
VCXO
APC DET (REC)
APC DET (PB)
PB AFC
REC AFC
2
36
20
30
32
28
27
26
34
22
BPF2
TP4 SUB BM OUT
R202 320FH VCO
C5 VXO
TP3 VCXO OUT2
CR FILTER
CR FILTER
C SYNC
CR FILTER
Q15–Q18
AMP
R31,R32,C13
LPF
C SYNC
A
B
C
E
F
G
5
4
3
2
1


Hz
IC4
LPF
5
R214
YNR INPUT LEVEL
TP11
YNR
RETURN
TP15
YNR OUT
5V
VPB
R207
R206
Q29
H: ON
5V
PB 5V
SP
R205
R204
Q28
S: ON
Q27
N: ON
R206
S WHITE CLIP
R207
N WHITE CLIP
R205
S DARK CLIP
R204
N DARK CLIP
R208
S DEVIATION
R209
N DEVIATION
R210
S CARRIER
R211
N CARRIER
38
41
W/C
D/C
29
CLAMP
NL
DE
MAIN
PRE-EMPHA
25
26
EMPHASIS
TP9
5V
Q36
SP: ON
EP: ON
CARRIER
&
DEVIATION
R208,R209
R210,R211
23
22
S
N
FM
MOD
REC
PB
19
DOC
DET
AGC
DET
24
5V
18
Q38
VP ON
H: ON
TP12
REC FM
Q37
EF
R217
S REC FM LEVEL
R218
N REC FM LEVEL
IC5
7
S REC
EQ AMP
EP: ON
9
N REC
EQ AMP
11
From/To 0 9
PRE/REC AMP F1
CN1
5 REC FM
LPF N
LPF S
N
S
DE
EMPH
DEMOD
LIM2
HPF
LPF1
LIM1
17
S DET
15
7
8
9
8
CR
FILTER
S/N
5V
R216
Q41
S: ON
R215
R215
S PB Y LEVEL
R216
N PB Y LEVEL
R220
S EP VIDEO EQ
R219
S SP VIDEO EQ
IC5
R220
R219
15
17
S PB
EQ AMP
N PB
EQ AMP
5
S
N
12
13
4 PB FM
Q64
V PULSE(H): ON
R221
N VIDEO EQ
R222
S REC COLOR LEVEL
Q24
EP: ON
3 Q19
S
N
4
5
3 REC COLOR
R223
N REC COLOR LEVEL
Q25
EP: ON
13
11
2 PB COLOR
H
I
J
K
M
N
O

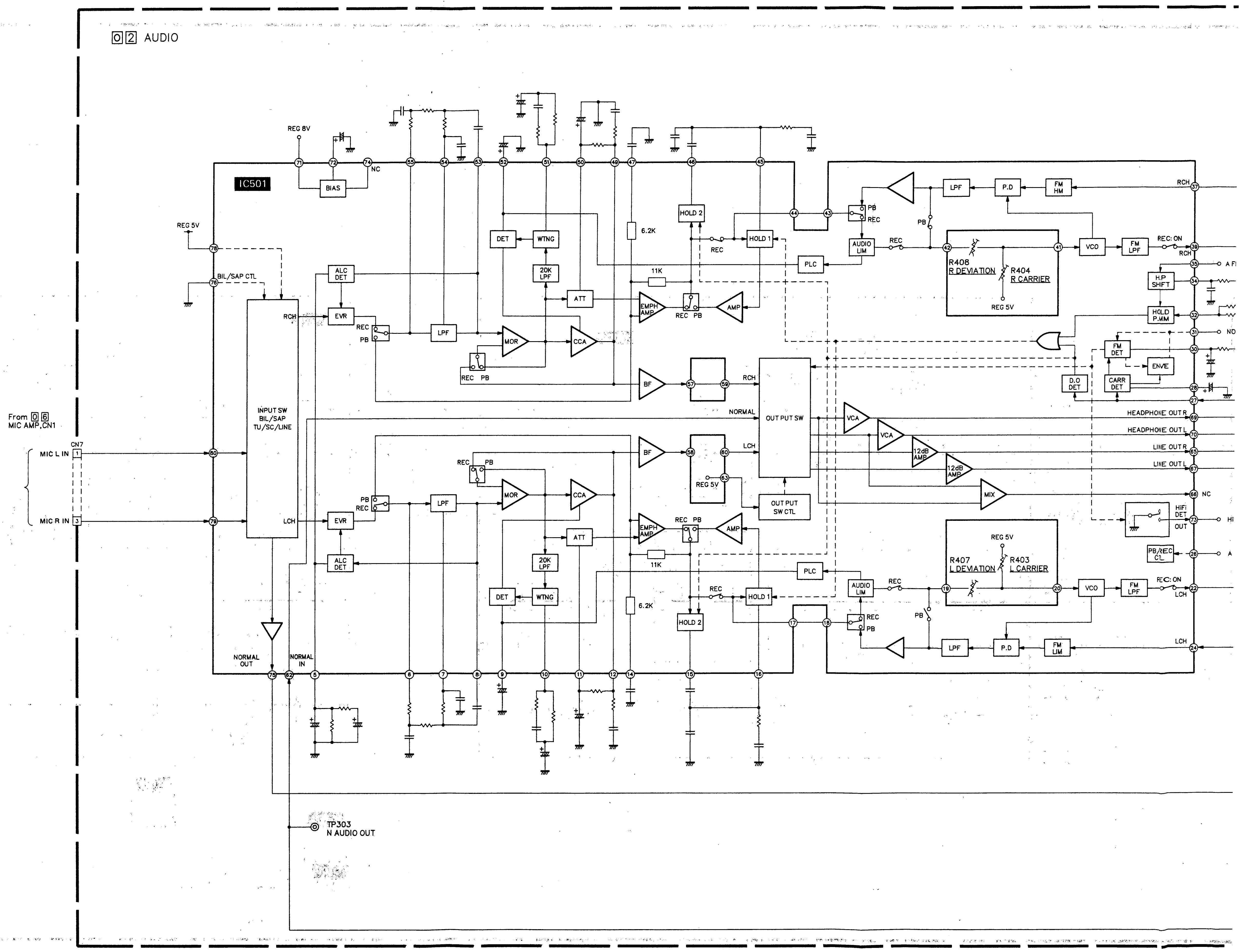
4.4 SERVO BLOCK DIAGRAM


01 MAIN(SERVO)
R103
PB SWITCHING POINT
TP104
CAP MON
TP105
DRUM MON
TP106
DRUM PG/FG
IC101
PHASE MONITOR
TO MECHACON
D FF
SM9
To 02
A/V,CN3
CN9
A FF
H FF
V FF
To 09
PRE/REC AMP CN1
CN2
V SW-A
V SW-B
V SW-C
V SW-D
Q123
V SW OFF(H): ON
Q124
V SW OFF(H): ON
A SW-A
A SW-B
A SW-C
A SW-D
SWITCH
PULSE GEN
V
A
DRUM FV
CONV
R140,C120
LPF
IC102
DRUM
MIX AMP
FT102
DRUM
TRAP
DC
LIMITER
Q106
R144,C123
LPF
LOOP
LIMITER
R145,C126
From/To 02
A/V,CN3
CN9
COMP SYNC
V PULSE
YNR PULSE
SYNC
VP
YNR
SYNC PULSE
GEN
DRUM
PHASE DET
REV TRACK
DET
PB
REC
DC
CTL
DC
CFG
Q102
High: ON
Q101
High: ON
Q103
EP: ON
CAP CTL
IC102
CAPSTAN
MIX AMP
From 23
CTL, CN305
CN8
FRAME PULSE
FRAME
CAM/EXT
A/V REC
RESET
PB: ON
DRUM
REF COUNTER
30Hz
DIGITAL
TRACKING
CAPSTAN
REF COUNTER
CAPSTAN
F.V CONV
R120,C110
LPF
DC
LIMITER
Q104
R128,C113
LPF
LOOP
FILTER
R129,C116
CAPSTAN
PHASE DET
L
H
CPU REF
REC
CTL
PB 5V
PB 5V
R175,C156
CR
DRUM FF
IC105
TIM
V/I
VCA
DC
ENV
S/H
S/H
ENV/DC
OUT
TP103
AVG FM
TO MECHACON
AVG FM
SM11
A FM
From 09
PRE/REC AMP CN1
CN2
V TP FM
A TP FM
AMP
AMP
H
L
HPF
L101,C148,C150
H
L
IC104
CAP FG
TP102
OPE AMP
IC106
AMP
IC106
CAPSTAN
FG AMP
WRITE(H)
WRITE(L)
CONTROL
HEAD
CN11
CTL HEAD(+)
CTL HEAD(-)
REC CTL
AMP
CTL
AMP-1
CTL
AMP-2
TP101
PB CTL PULSE
A
B
C
E
F
G
H
1
2
3
4
5
6

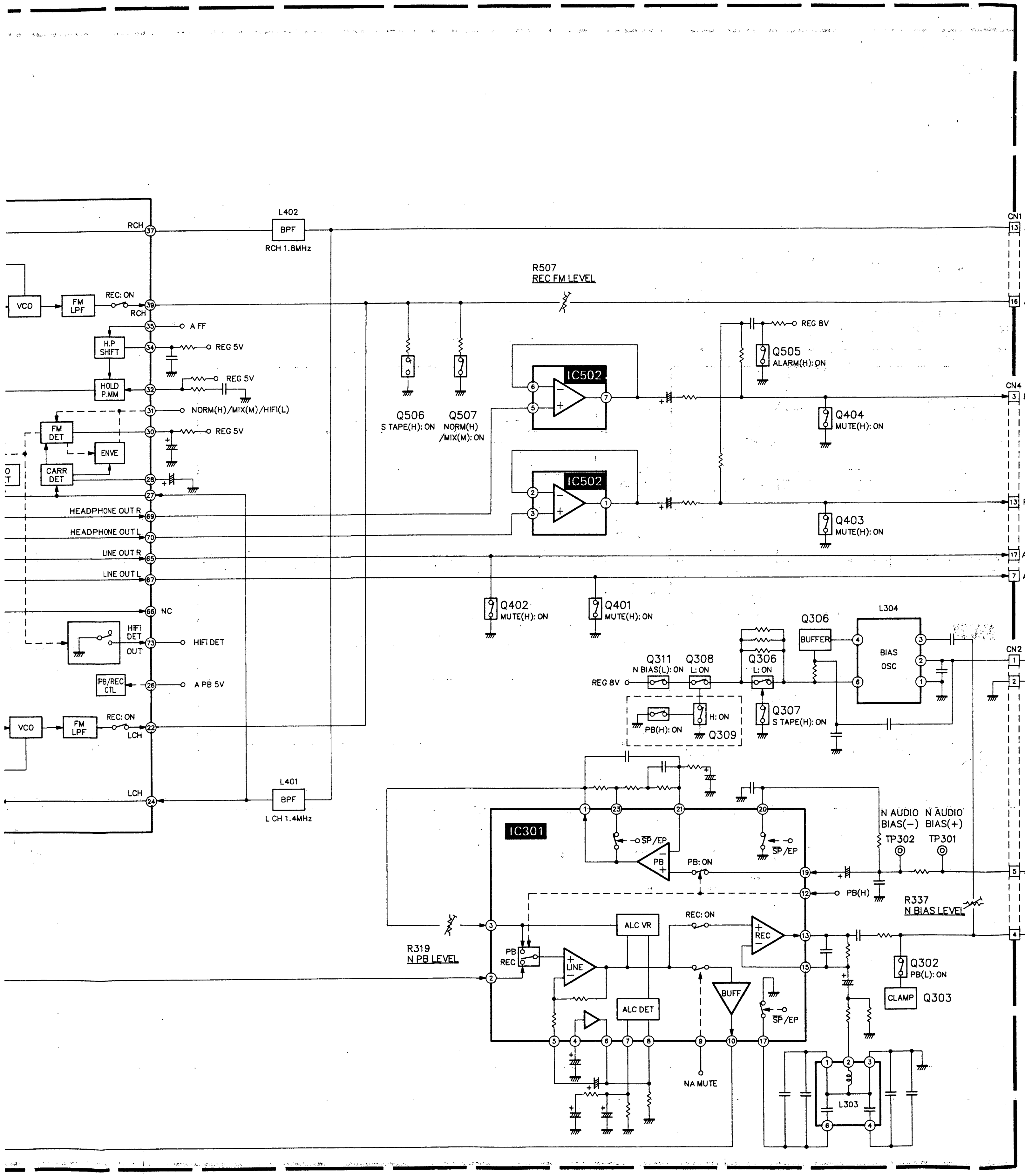
	⑦	⑧
PB	L	L
PB SEARCH	L	M
REC	H	H


TP107
DRUM FG
IC251
WAVE FORM SHAPER
MIX
WAVE FORM SHAPER
TP108
DRUM PG
CN3
DRUM FG(+)
DRUM FG(−)
DRUM PG(+)
DRUM PG(−)
IC251
BRK
DIFERENCE AMP & GAIN VARIABLE AMP & DRIVE
HALL AMP & DRIVE WAVE MIXER
ERROR AMP
START/ STOP
MR 5V
H1(+)
H1(−)
H2(+)
H2(−)
H3(+)
H3(−)
L1
L2
L3
DRUM MOTOR
FT101
CAPSTAN TRAP
DRUM ERROR
DRUM POWER
CAPSTAN REFERENCE
DD1
DC−DC CONVERTOR
POWER ON
CAPSTAN POWER
Q1
DECK POWER ON(H): ON
APSTAN G AMP
CN1
FG(+)
MR HEAD
IC252
HALL REG
ROTATE CONTROL
DRIVE AMP
COIL 1
COIL 2
COIL 3
HG 1(+)
HG 1(−)
HG 2(+)
HG 2(−)
HG 3(+)
HG 3(−)
HG BIAS(+)
HG BIAS(−)
BIAS
CAPSTAN MOTOR
H
I
J
K
M
N
O

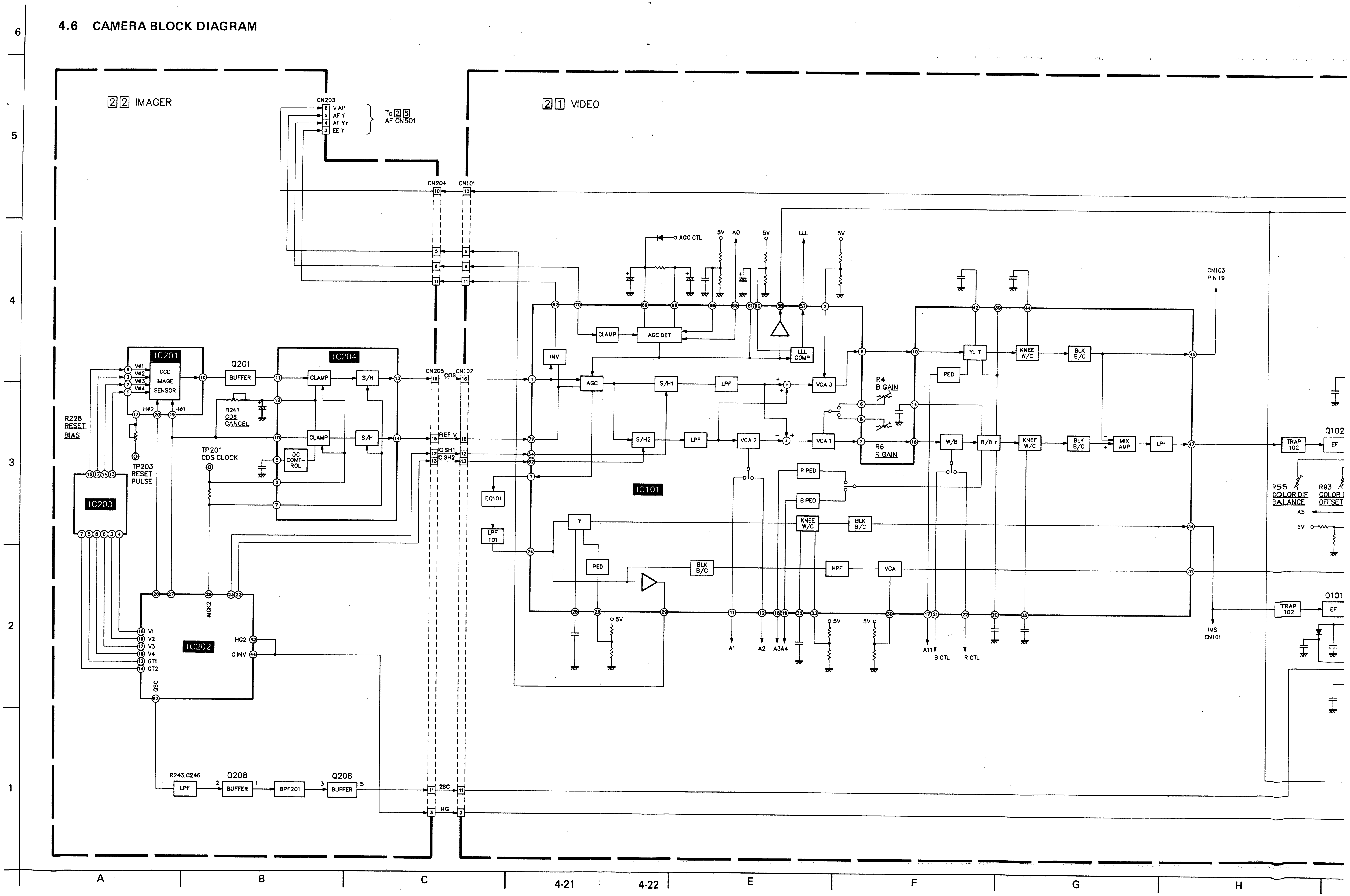
4.5 AUDIO BLOCK DIAGRAM

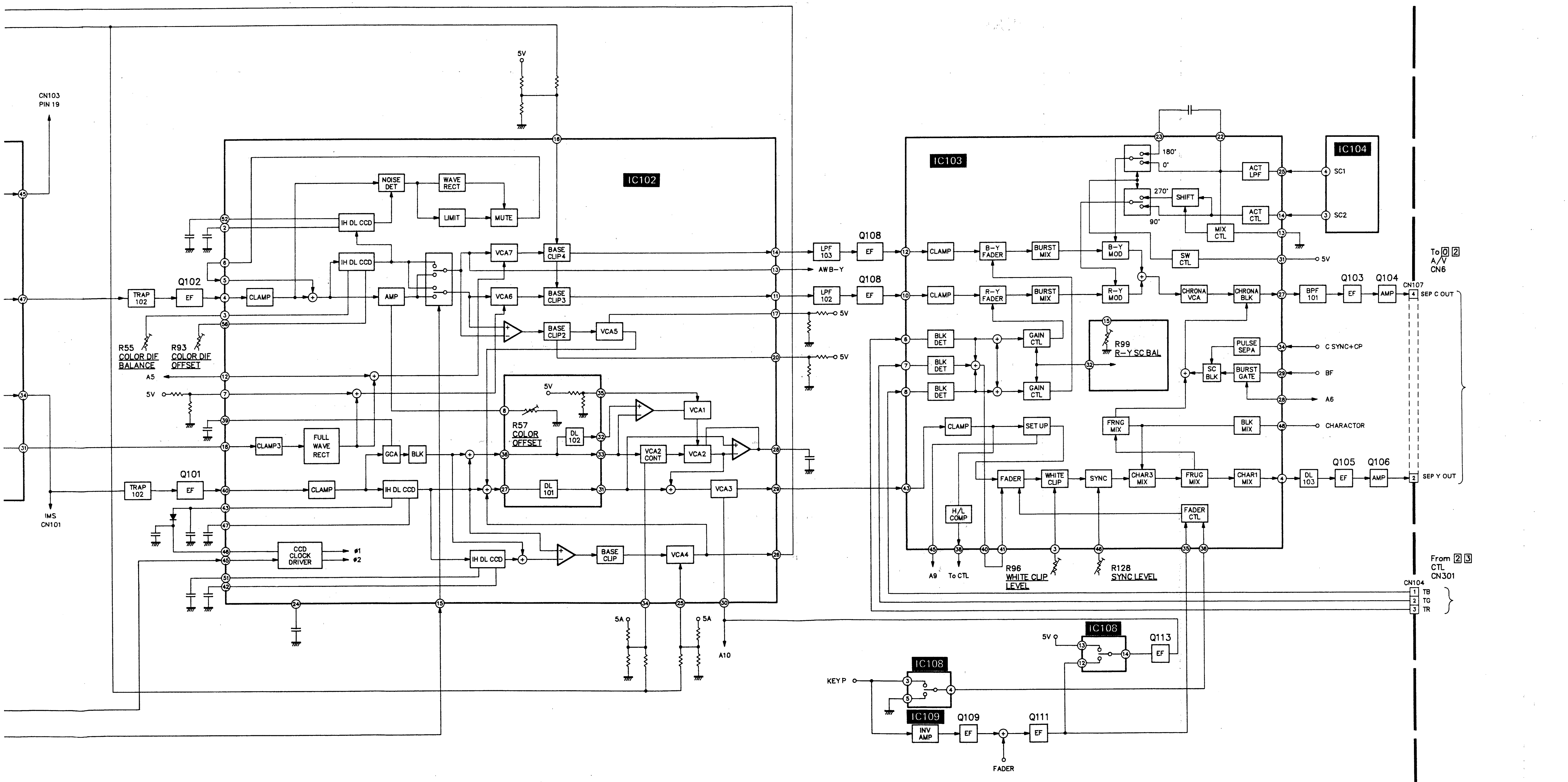


02 AUDIO
IC501
REG 8V
BIAS
NC
REG 5V
BIL/SAP CTL
From 06 MIC AMP,CN1
CN7
MIC L IN
MIC R IN
INPUT SW BIL/SAP TU/SC/LINE
RCH
LCH
ALC DET
EVR
REC
PB
LPF
MOR
CCA
DET
WTNG
20K LPF
ATT
EMPH AMP
AMP
6.2K
11K
HOLD 2
HOLD 1
PLC
BF
REG 5V
OUT PUT SW
OUT PUT SW CTL
NORMAL
VCA
12dB AMP
MIX
AUDIO LIM
LPF
P.D
FM HM
FM LIM
VCO
FM LPF
REC: ON
R408 R DEVIATION
R404 R CARRIER
R407 L DEVIATION
R403 L CARRIER
H.P SHIFT
HOLD P.MM
FM DET
ENVE
CARR DET
D.O DET
HIFI DET OUT
PB/REC CTL
HEADPHONE OUT R
HEADPHONE OUT L
LINE OUT R
LINE OUT L
NC
NORMAL OUT
NORMAL IN
TP303 N AUDIO OUT
71 72 74 55 54 53 52 51 50 49 47 46 45 44 43 42 41 39 37 35 34 32 31 30 28 27 69 70 65 67 68 73 26 22 24 20 19 18 17 16 15 14 12 11 10 9 8 7 6 5 62 75 76 78 79 80 57 58 59 60 63


L402
BPF
RCH 1.8MHz
RCH
VCO
FM LPF
REC: ON
A FF
H.P SHIFT
REG 5V
HOLD P.MM
NORM(H)/MIX(M)/HIFI(L)
FM DET
ENVE
CARR DET
HEADPHONE OUT R
HEADPHONE OUT L
LINE OUT R
LINE OUT L
NC
HIFI DET
OUT
HIFI DET
PB/REC CTL
A PB 5V
LCH
L401
L CH 1.4MHz
R507
REC FM LEVEL
Q506
S TAPE(H): ON
Q507
NORM(H) /MIX(M): ON
IC502
REG 8V
Q505
ALARM(H): ON
Q404
MUTE(H): ON
Q403
MUTE(H): ON
Q402
MUTE(H): ON
Q401
MUTE(H): ON
From/To 09
PRE/REC AMP, F1
CN1
A PB FM
A REC FM
CN4
PHONE R
PHONE L
AUDIO R OUT
AUDIO L OUT
To 03
JACK,CN1
Q306
BUFFER
L304
BIAS OSC
Q311
N BIAS(L): ON
Q308
L: ON
L: ON
REG 8V
PB(H): ON
H: ON
Q309
Q307
S TAPE(H): ON
CN2
AUDIO ERASE
IC301
SP/EP
PB
PB: ON
PB(H)
N AUDIO BIAS(−)
TP302
N AUDIO BIAS(+)
TP301
R337
N BIAS LEVEL
AUDIO HEAD
R319
N PB LEVEL
PB
REC
LINE
ALC VR
ALC DET
REC: ON
REC
BUFF
Q302
PB(L): ON
CLAMP
Q303
NA MUTE
L303

4.6 CAMERA BLOCK DIAGRAM

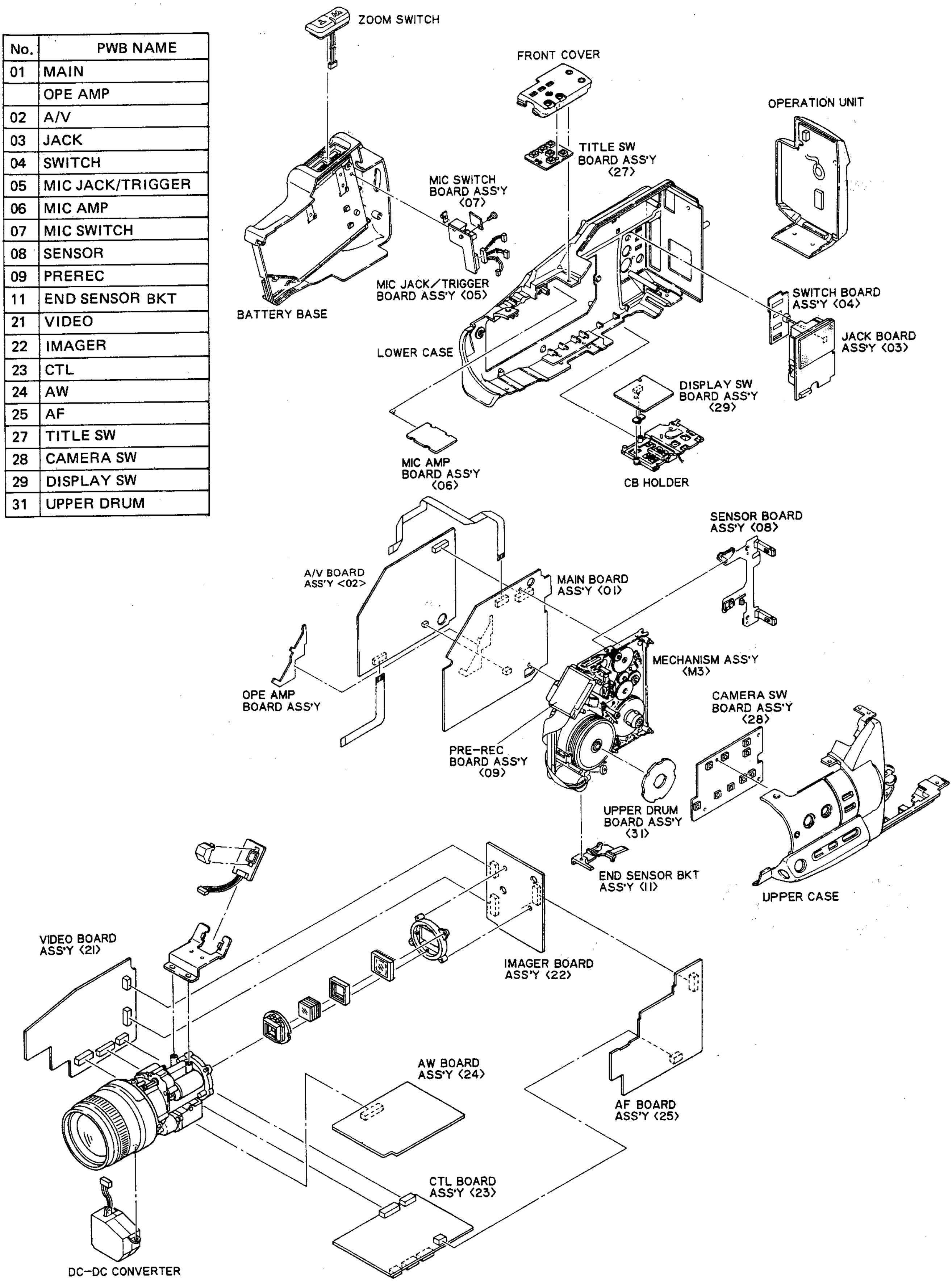

6
5
4
3
2
1
A
B
C
E
F
G
H
22 IMAGER
21 VIDEO
CN203
6 V AP
5 AF Y
4 AF Y T
3 EE Y
To 25 AF CN501
CN204
CN101
CN205
CN102
CDS
REF V
C SH1
C SH2
2SC
HG
IC201
CCD IMAGE SENSOR
Vφ1
Vφ2
Vφ3
Vφ4
Hφ2
Hφ1
Q201
BUFFER
IC204
CLAMP
S/H
DC CONT-ROL
R241 CDS CANCEL
R228 RESET BIAS
TP203 RESET PULSE
TP201 CDS CLOCK
IC203
IC202
V1
V2
V3
V4
GT1
GT2
HG2
C INV
MCK2
OSC
R243,C246
LPF
Q208
BUFFER
BPF201
IC101
AGC CTL
5V
AO
LLL
CLAMP
AGC DET
INV
AGC
S/H1
S/H2
LPF
VCA 3
VCA 2
VCA 1
LLL COMP
R4 B GAIN
R6 R GAIN
YL T
PED
KNEE W/C
BLK B/C
W/B
R/B T
MIX AMP
R PED
B PED
EQ101
LPF 101
T
HPF
VCA
CN103 PIN 19
IMS CN101
A1
A2
A3A4
A11
B CTL
R CTL
TRAP 102
Q102
EF
Q101
R55 COLOR DIF BALANCE
R93 COLOR OFFSET
A5


CN103
PIN 19
IMS
CN101
IC102
5V
NOISE DET
WAVE RECT
LIMIT
MUTE
IH DL CCD
IH DL CCD
TRAP 102
Q102
EF
CLAMP
AMP
VCA7
VCA6
BASE CLIP4
BASE CLIP3
BASE CLIP2
VCA5
R55
COLOR DIF BALANCE
R93
COLOR DIF OFFSET
A5
5V
CLAMP3
FULL WAVE RECT
GCA
BLK
R57
COLOR OFFSET
DL 102
DL 101
VCA1
VCA2 CONT
VCA2
VCA3
TRAP 102
Q101
EF
CLAMP
IH DL CCD
CCD CLOCK DRIVER
ø1
ø2
IH DL CCD
BASE CLIP
VCA4
5A
5A
A10
5V
5V
LPF 103
Q108
EF
AWB-Y
LPF 102
Q108
EF
IC103
CLAMP
B-Y FADER
BURST MIX
B-Y MOD
CLAMP
R-Y FADER
BURST MIX
R-Y MOD
180°
0°
270°
90°
SHIFT
ACT LPF
ACT CTL
MIX CTL
SW CTL
CHRONA VCA
CHRONA BLK
BLK DET
BLK DET
BLK DET
GAIN CTL
GAIN CTL
R99
R-Y SC BAL
PULSE SEPA
SC BLK
BURST GATE
CLAMP
SET UP
FRNG MIX
BLK MIX
FADER
WHITE CLIP
SYNC
CHAR3 MIX
FRUG MIX
CHAR1 MIX
H/L COMP
FADER CTL
A9
To CTL
R96
WHITE CLIP LEVEL
R128
SYNC LEVEL
IC104
SC1
SC2
5V
C SYNC+CP
BF
A6
CHARACTOR
BPF 101
Q103
EF
Q104
AMP
DL 103
Q105
EF
Q106
AMP
CN107
SEP C OUT
SEP Y OUT
To 0 2
A/V
CN6
From 2 3
CTL
CN301
CN104
TB
TG
TR
IC108
5V
Q113
EF
IC108
KEY P
IC109
INV AMP
Q109
EF
Q111
EF
FADER
H
I
J
K
M
N
O

SECTION 5
SCHEMATIC DIAGRAMS AND CIRCUIT BOARDS

5.1 CIRCUIT BOARD LOCATION

No.	PWB NAME
01	MAIN
	OPE AMP
02	A/V
03	JACK
04	SWITCH
05	MIC JACK/TRIGGER
06	MIC AMP
07	MIC SWITCH
08	SENSOR
09	PREREC
11	END SENSOR BKT
21	VIDEO
22	IMAGER
23	CTL
24	AW
25	AF
27	TITLE SW
28	CAMERA SW
29	DISPLAY SW
31	UPPER DRUM

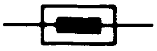

ZOOM SWITCH
FRONT COVER
OPERATION UNIT
TITLE SW BOARD ASS'Y <27>
MIC SWITCH BOARD ASS'Y <07>
MIC JACK/TRIGGER BOARD ASS'Y <05>
BATTERY BASE
SWITCH BOARD ASS'Y <04>
JACK BOARD ASS'Y <03>
LOWER CASE
DISPLAY SW BOARD ASS'Y <29>
MIC AMP BOARD ASS'Y <06>
CB HOLDER
SENSOR BOARD ASS'Y <08>
A/V BOARD ASS'Y <02>
MAIN BOARD ASS'Y <01>
MECHANISM ASS'Y <M3>
OPE AMP BOARD ASS'Y
CAMERA SW BOARD ASS'Y <28>
PRE-REC BOARD ASS'Y <09>
UPPER DRUM BOARD ASS'Y <31>
END SENSOR BKT ASS'Y <11>
UPPER CASE
VIDEO BOARD ASS'Y <21>
IMAGER BOARD ASS'Y <22>
AW BOARD ASS'Y <24>
AF BOARD ASS'Y <25>
CTL BOARD ASS'Y <23>
DC-DC CONVERTER

5.2 SCHEMATIC DIAGRAM NOTES

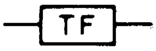
1. ▨ parts are safety related parts. When replacing them, be sure to use the specified parts.
2. Unit indications

No units: [Ω]	No units: [μF]	No units: [μH]
K: [kΩ]	P: [pF]	m: [mH]
M: [MΩ]		

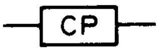
Thermistor



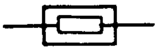
Thermal Fuse

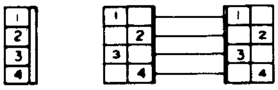


Circuit Protector

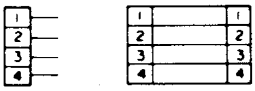


Posistor

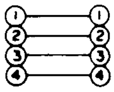




: Connector



: Board in connector

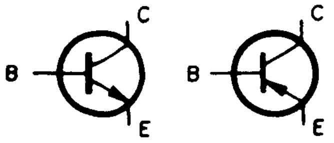


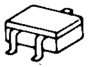
: Direct connection

$\overline{\text{COUNT UP}}$: Active only at high.
$\overline{\text{COUNT DOWN}}$: Active only at low.

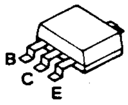
VS : Connected pattern in the board.
MS Abbreviations
SM V : Video M : Mechacon
S : Servo A : Audio
VS : Signal flow from video to servo.

3. Chip transistor

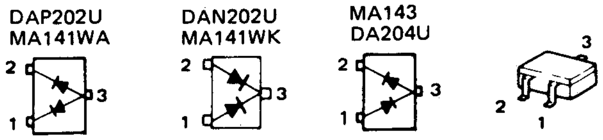




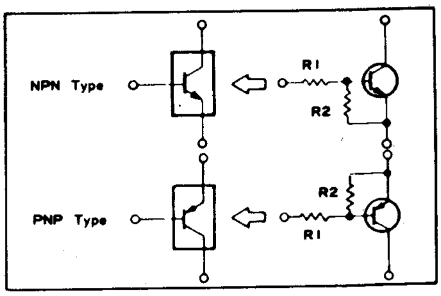
(Standard type)



4. Chip diode


DAP202U
MA141WA
2
1
3
DAN202U
MA141WK
2
1
3
MA143
DA204U
2
1
3
3
2
1

5. Digital transistor


NPN Type
R1
R2
PNP Type
R2
R1

RESISTOR VALUES

JUNCTION	Part No.	R1 (kΩ)	R2 (kΩ)
PNP	DTA124EU	22	22
NPN	DTC144EU DTC124EU	47 22	47 22

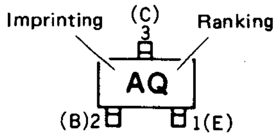
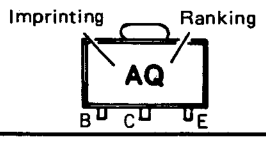
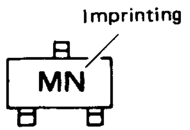
Note: The digital transistor includes built in resistors.
It features small size and high reliability.
Both PNP and NPN types are available.
USES: INVERTER, INTERFACE, DRIVER CIRCUITS.

6. Definition of the surface and the back of circuit board diagrams
Front : Side on which discrete parts are assembled
Rear : Side on which chip parts are assembled

5.3 REPLACING SUBMINIATURE "CHIP" PARTS

1. Some resistors, shorting jumpers (0 Ω resistance), ceramic capacitors, transistors, and diodes are chip parts. These chip parts cannot be reused after they are once removed.
2. Additional compactness is achieved by using subminiature chip parts for certain circuit elements. When replacing these parts, note the cautions outlined below.
3. Chip transistors and diodes used in this model are outlined bellow.
4. Refer to parts list for correct part numbers.

- **Chip transistor and chip diode imprinting**

Transistors				Diodes	
Type	**Imprinting**	**Type**	**Imprinting**	**Type**	**Imprinting**
DTA114EU	14	2SB1073(PQ)	1P, 1Q	DAN202K	N
DTA124EK	15	2SB1132(QR)	BAQB, BARB	DAN202U	N
DTA124EU	15	2SB1218(QR)	AQ, AR	DAP202K	P
DTA143ZK	E13	2SB4098(PQ)	AP, AQ	DAP202U	P
DTA144EK	16	2SB624	BV1–BV5	DA204K	K
DTA144EU	16	2SB798	DK–DM	DA204U	K
DTC124EK	25	2SC2412K(QR)	BQ, BR	FMN1	N1
DTC124EU	25	2SC3931(CD)	UC, UD	IMN10	N10
DTC124TU	05	2SC3936(BC)	KB, KC	MA141A	MA
DTC143TU	03	2SC4081	BQ–BS	MA141WA	MN
DTC144EK	26	2SC4097(QR)	CQ, CR	MA141WK	MT
DTC144EU	26	2SC4098(PQ)	AP, AQ	MA704	MIK
DTC144WK	86	2SC4116(G)	LG	RD7.5M-T2B2	7.52
2SA1037K(QR)	FQ, FR	2SC4181	L17, L18		
2SA1502	HL	2SD1819	YR–YS		
2SA1532(BC)	EB, EC	2SJ146	4D		
2SA1576	FQ–FS	UN5216	8F		
2SA1577(PQ)	HP, HQ				
					

5.4 KEY TO ABBREVIATIONS

A
AC : Alternating Current
ACC : Automatic Color Control
A/CTL : Audio/Control
ADC : Analog to Digital Converter
ADD : Adder
ADJ : Adjustment
AE : Audio Erase
AEF : Automatic Editing Function
AF : Auto Focus
AFC : Automatic Frequency Control
AFT : Automatic Fine Tuning
AGC : Automatic Gain Control
AH : Audio Head
AL : After Loading, Allways
ALC : Automatic Light Compensation
Automatic Level Control
ALM : Alarm
ALU : Arithmetic Logic Unit
AM : Amplitude Modulation
AMP : Amplifier
ANT : Antenna
APC : Automatic Pedestal Control
Automatic Phase Control
APL : Average Picture Level
A S M : Audio/Servo/Mechacon
ASS'Y : Assembly
ATT : Attenuator
AUD : Audio
AUTO : Automatic
AUX : Auxiliary

B
B : Base, Blue
BAL : Balance
BATT : Battery
BBD : Bucket Brigade Device
BCD : Binary Coded Decimal
BEG : Beginning
BF : Behind Focus
BFP : Burst Flag Pulse
BPF : Band Pass Filter
BIT : Binary Digit
BLK : Black, Blanking
BLU : Blue
BNC : Bayonet Connector
BOT : Beginning of Tape
BPF : Bandpass Filter
BRK : Brake
BRN : Brown
BRT : Brightness
BT : Band Tuning
BUFF : Buffer
BW or B/W : Black and White

C
C : Capacitance, Collector, Color, Character
CA : Camera
CAL : Calibration
CAP : Capstan, Capacitor
CAR : Carrier
CARR : Carrier
CASS : Cassette
CC : Cassette Compartment
CCD : Charge Coupled Device
CCT : Circuit
CdS : Cadmium Sulphide
CD : Count Down
CE : Chip Enable
CF : Ceramic Filter, Color Frame, Correct Focus
CH : Channel
CHG : Charge
CHROMA : Chrominance
CLK : Clock
CLR : Clear
CMD : Command
CMOS : Complementary Metal Oxide
Semiconductor
CNT : Count, Counter
COL : Color
COM : Common
COMB : Combination
Comb Filter
COMP : Comparator
Composite
Compensation
CONN : Connector
CONV : Converter
CP : Circuit Protector
Clamp Pulse
CPC : Capstan Phase Control
CPU : Central Processing Unit
CTC : Crosstalk Cancel
CTL : Control

D
D : Drum, Digital, Diode, Drain
DAC : Digital to Analog Converter
dB : Decibel
DC : Direct Current
DD : Direct Drive
DEC : Decoder
DEMOD : Demodulator
DEMUX : Demultiplexer
DET : Detector
DEV : Deviation
DFRS : Drum Free Running Stop
DG : Differential Gain
DIF : Differential
DISCR : Discriminator
DL : Delay Line
DOC : Dropout Compensator
DOD : Drop Out Detector
DP : Differential Phase
DPC : Drum Phase Control
DYAC : Dynamic Aperture Control

E
E : Edit, Emitter
EDP : Electronic Data Processing
E-E : Electric to Electric
EF : Emitter-Follower
EMP : Emphasis
EN : Enable
ENC : Encoder
ENV : Envelope
EOT : End of Tape
EP : Extended Play
EQ : Equalizer
ES : Electronic Switch
ESNS : End Sensor
EXP : Expander
EXT : External

F
F : Farad, Fuse
F ADV : Frame Advance
FDP : Fluorescent Display Panel
FE : Full Erase
FET : Field Effect Transistor
FF : Fast Forward, Front Focus
Flipflop
FG : Frequency Generator
FM : Frequency Modulation
FR : Full Recording, Frame, Fusible Resistor
FREQ : Frequency
F-V CONV : Frequency to Voltage Converter
FWD : Forward
FWD S : Forward Search

G
G : Green, Gate, Grid
GEN : Generator
GND : Ground
GRN : Green
GRY : Gray

H
H : High, Henry, Hour
HBF : Horizontal Burst Flag
HD : Horizontal Drive
HPF : Highpass Filter
Hz : Herz

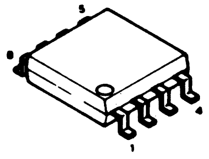
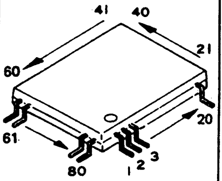
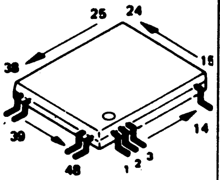
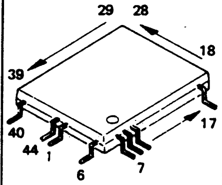
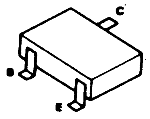
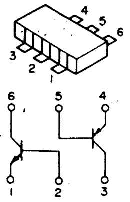
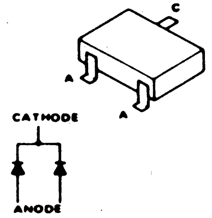
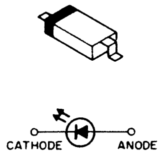
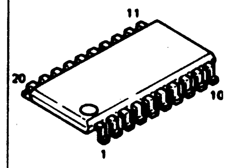
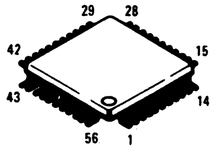
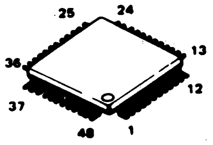
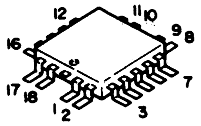
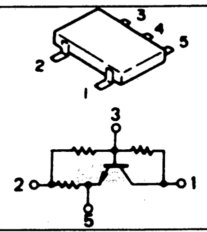
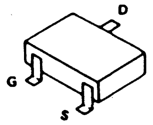
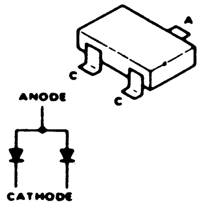
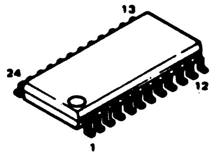
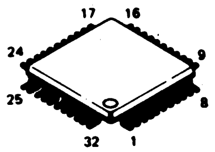
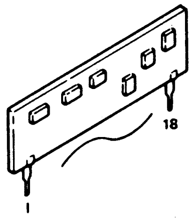
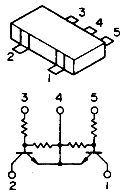
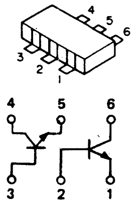
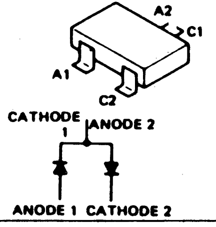
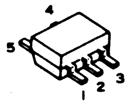
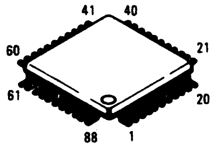
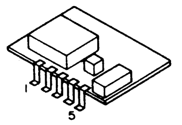
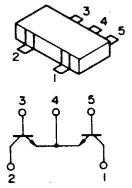
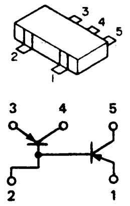
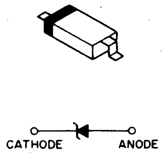
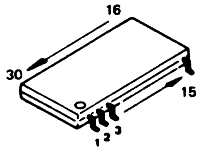
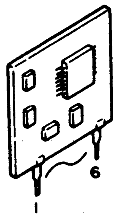
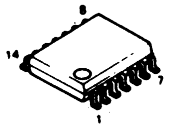
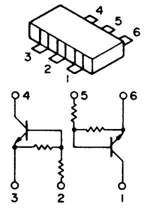
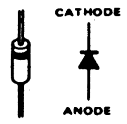
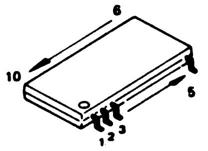
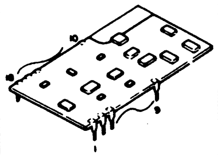
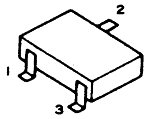
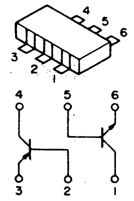
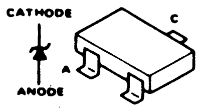
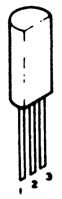
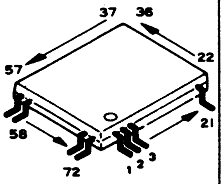
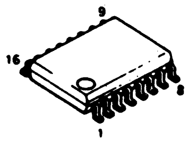
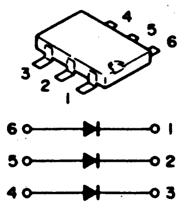
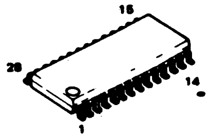
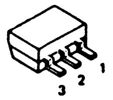
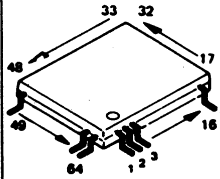
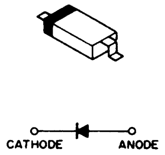
I	IC	: Integrated Circuit
	ID	: Identification (Pulse)
	IF	: Intermediate Frequency
	IFR	: Infrared
	IFT	: Intermediate Frequency Transformer
	IND	: Indicator
	INH	: Inhibit
	INS	: Insert
	INT	: Internal, Interrupt
	INV	: Inverter, Interleave
	I/O	: Input/Output
	IR	: Infrared
L	L	: Low, Left
	LCD	: Liquid Crystal Display
	LED	: Light Emitting Diode
	LIM	: Limiter
	LIN	: Linearity
	LLD	: Low Light Detector
	LOAD	: Loading (Cassette)
	LP	: Long Play
	LPF	: Lowpass Filter
	LSB	: Lower Sideband
M	M	: Motor, Mega
	MAX	: Maximum
	MDA	: Motor Drive Amplifier
	MECHACON	: Mechanism Control
	MIC	: Microphone
	MIN	: Minimum
	MIX	: Mixer, Mixing
	MMV	: Monostable Multivibrator
	MNOS	: Metal Nitride Oxide Semiconductor
	MOD	: Modulation, Modulator
	MODEM	: Modulator-Demodulator
	MON	: Monitor
	MOS	: Metal Oxide Semiconductor
	MPX	: Multiplexer, Multiplex
	MS	: Mode Select
	MUT	: Muting
N	NAND	: Not And
	NC	: Not Connected, Normally Closed
	NFB	: Negative Feedback
	NLN	: Non-Linear
	NO	: Normally Open
	NOR	: Normal, Not-Or
	NR	: Noise Reduction
O	OP	: Operation
	OPAMP	: Operational Amplifier
	ORG	: Orange
	OSC	: Oscillator
P	PB	: Playback
	PC	: Photocoupler, Pulse Counter
	PCM	: Pulse Code Modulation
	PG	: Pulse Generator
	PGM	: Program
	PI	: Photo Interrupter
	PIC	: Picture Control
	PIF	: Picture Intermediate Frequency
	PLA	: Programmable Logic Array
	PLL	: Phase Locked Loop
	PNK	: Pink
	POS	: Position
	p-p	: Peak-to-Peak
	PR	: Pinch Roller
	PREAMP	: Preamplifier
	PRL	: Preroll
	P/S	: Pause/Still
	PSC	: Pulse Swallowing Control
	PU	: Pickup
	PUT	: Programmable Unijunction Transistor
	PWB	: Printed Wiring Board
	PWM	: Pulse Width Modulation
	PWR	: Power
Q	Q	: Quality Factor
R	R	: Red, Right
	RA	: Resistor Array
	RAM	: Random Access Memory
	REC	: Recording
	REF	: Reference
	REG	: Regulated, Regulator
	REM	: Remote
	REMOCON	: Remote Control (Unit)
	REV	: Reverse
	REV S	: Reverse Search
	REW	: Rewind
	RF	: Radio Frequency
	ROM	: Read Only Memory
	R/P	: Record/Playback
	RPT	: Repeat
	RS FF	: RS Flipflop
	RST	: Reset
	RT	: Rotary Transformer
	RUN	: Running
	RY	: Relay
S	SAW	: Sawtooth, Surface Acoustic Wave
	SC	: Subcarrier, Simulcast
	SCH	: Search
	SEL	: Select, Selector
	SENS	: Sensor
	SEP	: Separator
	SF	: Source Follower
	SFF	: Short Fast Forward
	SIF	: Sound Intermediate Frequency
	SN	: Signal to Noise Ratio
	SOL	: Solenoid
	SOS	: Sound on Sound
	SP	: Standard Play
	SR	: Supply Reel
	SREW	: Short Rewind
	S/S	: Slow/Still
	SSG	: Sync Signal Generator
	SSNS	: Start Sensor
	STD	: Strobe Data, Standard
	SUP	: Supply
	SW	: Switch
	SWD	: Switched
	SYNC	: Synchronization
T	TAL	: Tally
	TBC	: Time Base Corrector
	TC	: Tension Control, Time Code
	TEN	: Tension
	TF	: Thermal Fuse
	TIM	: Timing
	TK	: Tracking
	TNR	: Tuner
	TP	: Test Point
	TPZD	: Trapezoid
	TR	: Transistor, Trimmer
	TRANS	: Transformer
	TU	: Take-up
U	UL	: Unloading
	UNREG	: Unregulated
	UNSW	: Unswitched
V	V	: Vertical, Volt
	VACT	: Video Action
	VCO	: Voltage Controlled Oscillator
	VD	: Vertical Drive
	VIF	: Video Intermediate Frequency
	VLT	: Violet
	VR	: Variable Resistor
	VS	: Video and Sync
	VSCH	: Variable Search
	VV	: Video to Video
	VXO	: Variable Crystal Oscillator
W	W	: Watt
	WARN	: Warning
	W & D	: White and Dark
	WHT	: White
	WV	: Working Voltage
X	XTAL	: Crystal
Y	Y	: Luminance
	YEL	: Yellow

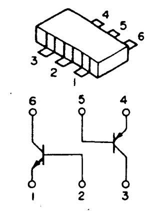
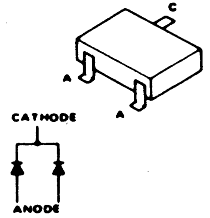
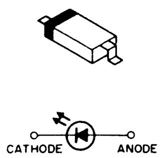
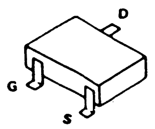
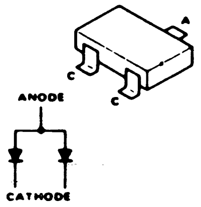
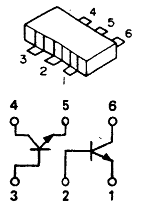
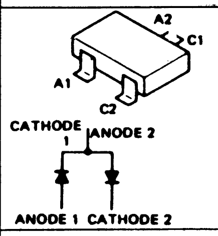
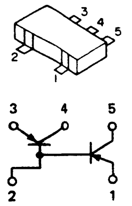
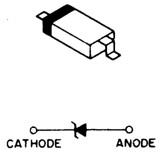
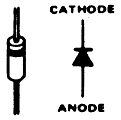
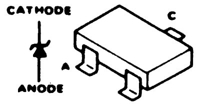
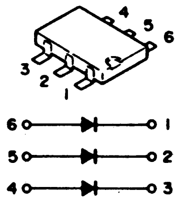
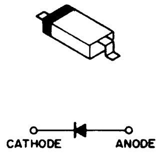
5.5 SEMICONDUCTOR SHAPES

	NAME	L
	IC	
A	AK9812	3A
	AN2271FAS	1C
	AN2512S	5C
	AN2571FAP	3B
	AN78L05M	8B
B	BA10358F	1A
	BA3308F	5C
	BA7043FS	2A
	BA7706KS	4B
	BA7751AFS	3A
	BU5736KS	1B
	BX7771F	5B
C	CXD1250N	2A
H	HA13489MP-XE	2D
	HD74HC165FP	7C
	H8B7177	6B
J	JCY0001A1	2B
	JCY0002A1	3B
	JCY0007-XE	1D
	JCY0009	2A
L	LB1617M-J-X	5A
	LM324DB-XE	5C
	LM358DB-XE	1A
M	MM1028-BF-X	1A
	MN12821(QR)	6C
	MN18888JFES	8C
	MN18888JFFS	8C
	MN4053BS	7C
	MSC7002GS-VK	2B
	MSM16811MS	1A
	M37413E6-104FP	1B
	M37414M5-101FP	2B
	M5M5256BFP-L	8A
	M51469HP	1C
	M52084FP	2C
	M5218FP	1A
	M54543AFP	6A
	M56780VP	2A
N	NJM2249M	1A
S	S-8051HN-CD	8B
	S-8052ANB-NE	8B
	S-0854HN-CB-X	8B
	S-81250HG-RD	8B
	S-87050AF	4A
	SN74HC04DB-XE	5C
	SN74HC08DB-XE	5C

	NAME	L
T	TC4S584F	4A
	TC4S66F	4A
	TC4S69F	4A
	TC4052BF	7C
	TC7S04F	4A
	TC7S08F	4A
	TC7S32F	4A
	TK10682M	1A
	T2368FAP	3B
U	UPC2375GB	7B
	UPC2387GR	5C
	UPC319G2	5C
	UPD6451AGT-804	2A
	UPD9430GK	1B
V	VC5035	5A
1	18VT51	3C
5	5VT52	4C
	TRANSISTOR	
D	DTA114EU	1E
	DTA124EE	1E
	DTA143EE	1E
	DTA144EE	1E
	DTC124EE	1E
	DTC143TU	1E
	DTC143XU	1E
	DTC144EE	1E
	DTC144EU	1E
F	FMU1	2E
U	UMG2	3E
	UMH2	5E
	UMW1	4E
	UMZ1	6E
	UN9113	1E
	UN9213	1E
	UN9214	1E
X	XP2401	4F
	XP2501	3F
	XP4601	6E
	XP5501	3F
	XP5601	3F

	NAME	L
2	2SA1532(BC)	1E
	2SA1576(RS)	1E
	2SA1577(PQR)	1E
	2SA1577(QR)	1E
	2SA1610	1E
	2SA1774(QRS)	1E
	2SA1774(RS)	1E
	2SA1790	1E
	2SB1462(QR)	1E
	2SB1462(RS)	1E
	2SB624-T1BBV4	1E
	2SC3936(C)	1E
	2SC4081(RS)	1E
	2SC4097(QR)	1E
	2SC4176	1E
	2SC4617(QRS)	1E
	2SC4617(RS)	1E
	2SC4655	1E
	2SD2216(RS)	1E
	2SK663	2F
	DIODE	
D	DAN222	1G
	DAP202U	2G
	DA221	3E
	DC8010	2G
	DTZ6.8	4G
E	ERA22-08	5G
	ERA81-004-F	5G
	ESJA04-02	5G
I	IMN10	6G
M	MA110	5G
	MA132WA	2G
	MA132WK	1G
	MA133	5G
	MA141K	1G
	MA141WK	1G
	MA152WK	1G
	MA157A	3G
	MA704	6G
	MA8075	4G
	MA8240	4G
R	RB451F	1G
	RB715F	1G
S	SIM-125ST-W	1H
	SLM-125VWS-X	1H
1	1SS244	5G
	1SV223	8G

	IC				TRANSISTOR		DIODE	
	A	B	C	D	E	F	G	H
1							 CATHODE ANODE A C	 CATHODE ANODE
2							 ANODE CATHODE A C	
3							 A2 C1 A1 C2 CATHODE 1 ANODE 2 ANODE 1 CATHODE 2	
4							 CATHODE ANODE	
5							 CATHODE ANODE	
6							 CATHODE ANODE A C	
7								
8							 CATHODE ANODE	

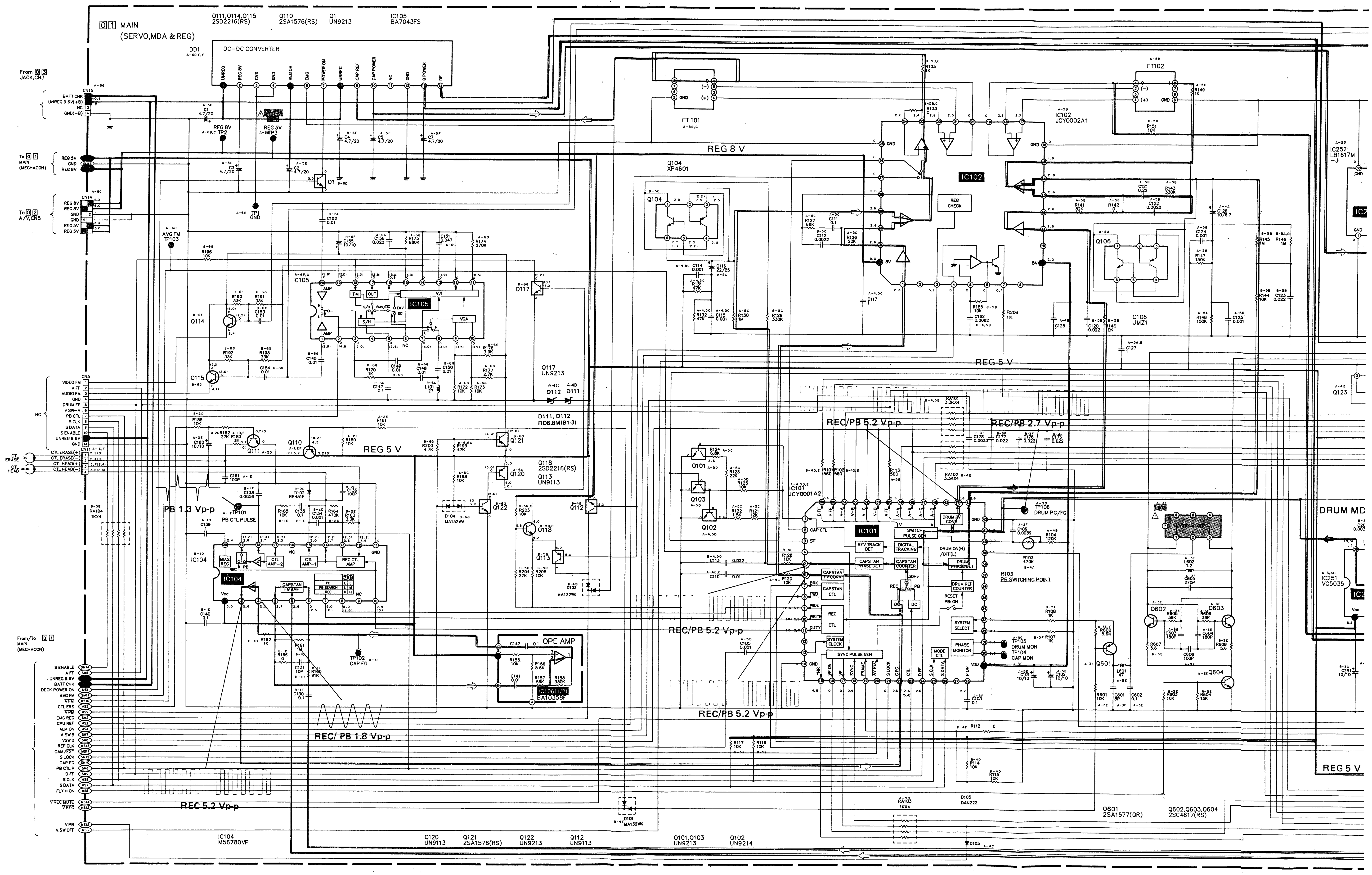
RANSISTOR		DIODE	
	F	G	H
	 4 5 6 3 2 1 6 5 4 1 2 3	 C A CATHODE A ANODE	 CATHODE ANODE
,5 -01		 A C ANODE C CATHODE	
	 4 5 6 3 2 1 4 5 6 3 2 1	 A2 C1 A1 C2 CATHODE 1 ANODE 2 ANODE 1 CATHODE 2	
	 3 4 5 2 1 3 4 5 2 1	 CATHODE ANODE	
6 5		 CATHODE ANODE	
		 CATHODE C A ANODE	
		 4 5 6 3 2 1 6 1 5 2 4 3	
		 CATHODE ANODE	

5.6 SERVO, REGULATOR & MDA SCHEMATIC DIAGRAM

- Voltage
  REC : Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.

*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.

- Waveform
  REC : Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.



01 MAIN (SERVO,MDA & REG)
Q111,Q114,Q115 2SD2216(RS)
Q110 2SA1576(RS)
Q1 UN9213
IC105 BA7043FS
DD1
DC-DC CONVERTER
UNREG
REG 8V
GND
REG 5V
EMG
POWER ON
CAP REF
CAP POWER
NC
D POWER
DE
From 03 JACK,CN3
BATT CHK
UNREG 9.6V(+B)
GND(-B)
CN15
REG 8V TP2
REG 5V TP3
TP1 GND
To 01 MAIN (MECHACON)
To 02 A/V,CN5
CN14
AVG FM TP103
FT101
FT102
REG 8 V
Q104 XP4601
IC102 JCY0002A1
REG CHECK
Q106 UMZ1
IC252 LB1617M -J
IC105
AMP
VCA
S/H
Q117
Q117 UN9213
D112
D111
D111, D112 RD6.8M(B1-3)
REG 5 V
Q114
Q115
CN5
VIDEO FM
A FT
AUDIO FM
GND
DRUM FF
V SW-A
PB CTL
S CLK
S DATA
S ENABLE
UNREG 9.6V
CN11
CTL ERASE(+)
CTL ERASE(-)
CTL HEAD(+)
CTL HEAD(-)
CTL ERASE
CTL HEAD
NC
Q110
Q111
Q121
Q120
Q118 2SD2216(RS)
Q113 UN9113
Q122
Q112
D104 MA132WA
D103 MA132WK
PB 1.3 Vp-p
TP101 PB CTL PULSE
IC104
BIAS REG
REC CTL AMP
CTL AMP-1
CTL AMP-2
CAPSTAN FG AMP
PB SEARCH
REC
TP102 CAP FG
OPE AMP
IC103(1/2) BA10358F
REC/ PB 1.8 Vp-p
REC 5.2 Vp-p
From/To 01 MAIN (MECHACON)
S ENABLE
A FF
UNREG 9.6V
BATT CHK
DECK POWER ON
AVG FM
A FM
CTL ERS
VPB
EMG REC
CPU REF
ALM ON
A SWB
V SWD
REF CLK
CAM/EXT
S LOCK
CAP FG
PB CTL P
D FF
S CLK
S DATA
FLYH ON
VREC MUTE
VREC
V PB
V.SW OFF
IC104 M56780VP
Q120 UN9113
Q121 2SA1576(RS)
Q122 UN9213
Q112 UN9113
Q101,Q103 UN9213
Q102 UN9214
D101 MA132WK
REG 5 V
REC/PB 5.2 Vp-p
REC/PB 2.7 Vp-p
RA101 3.3KX4
RA102 3.3KX4
Q101
Q103
Q102
IC101 JCY0001A2
CAP CTL
SP
REV TRACK DET
DIGITAL TRACKING
CAPSTAN PHASE DET
CAPSTAN COUNTER
CAPSTAN F/V CONV
CAPSTAN CTL
REC CTL
SYSTEM CLOCK
SYNC PULSE GEN
SWITCH PULSE GEN
DRUM 5V CONV
DRUM PHASE DET
DRUM REF COUNTER
DRUM ON(H) /OFF(L)
RESET PB:ON
SYSTEM SELECT
PHASE MONITOR
MODE CTL
TP106 DRUM PG/FG
R103 PB SWITCHING POINT
TP105 DRUM MON
TP104 CAP MON
REC/PB 5.2 Vp-p
RA103 1KX4
D105 DAN222
Q601 2SA1577(QR)
Q602,Q603,Q604 2SC4617(RS)
Q601
Q602
Q603
Q604
Q123
IC251 VC5035
DRUM MD
REG 5 V
A
B
C
D
E
F
G
1
2
3
4
5
6

· bar SP mode, VHS mode.
SP mode, VHS mode.

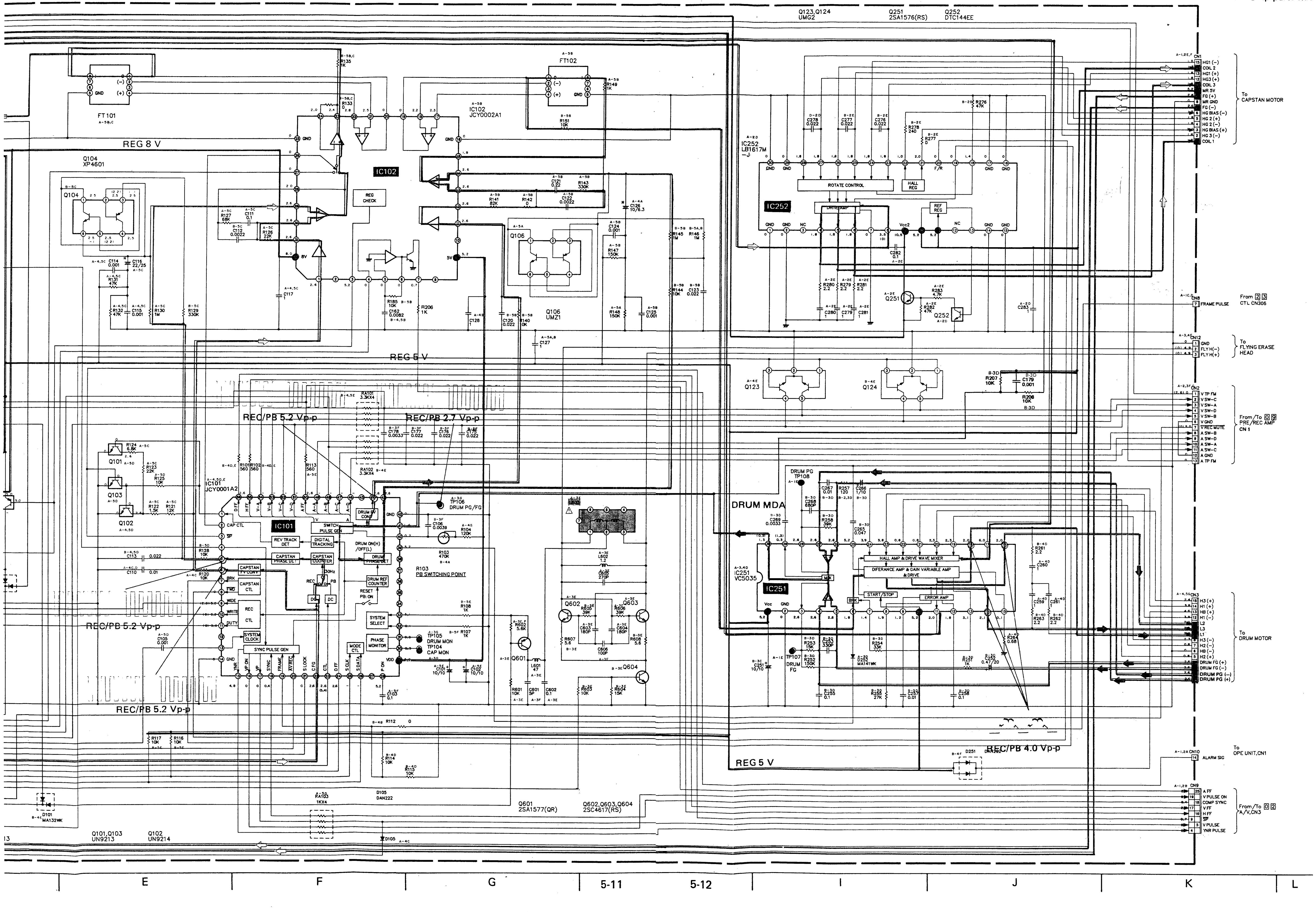
*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.

- Waveform
  REC : Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.

- SIGNAL PATH
  ← DRUM SERVO
  ⇦ CAPSTAN SERVO

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

- Address of chip parts
  A-1D
  Address
  A : Discrete parts side
  B : Chip parts side



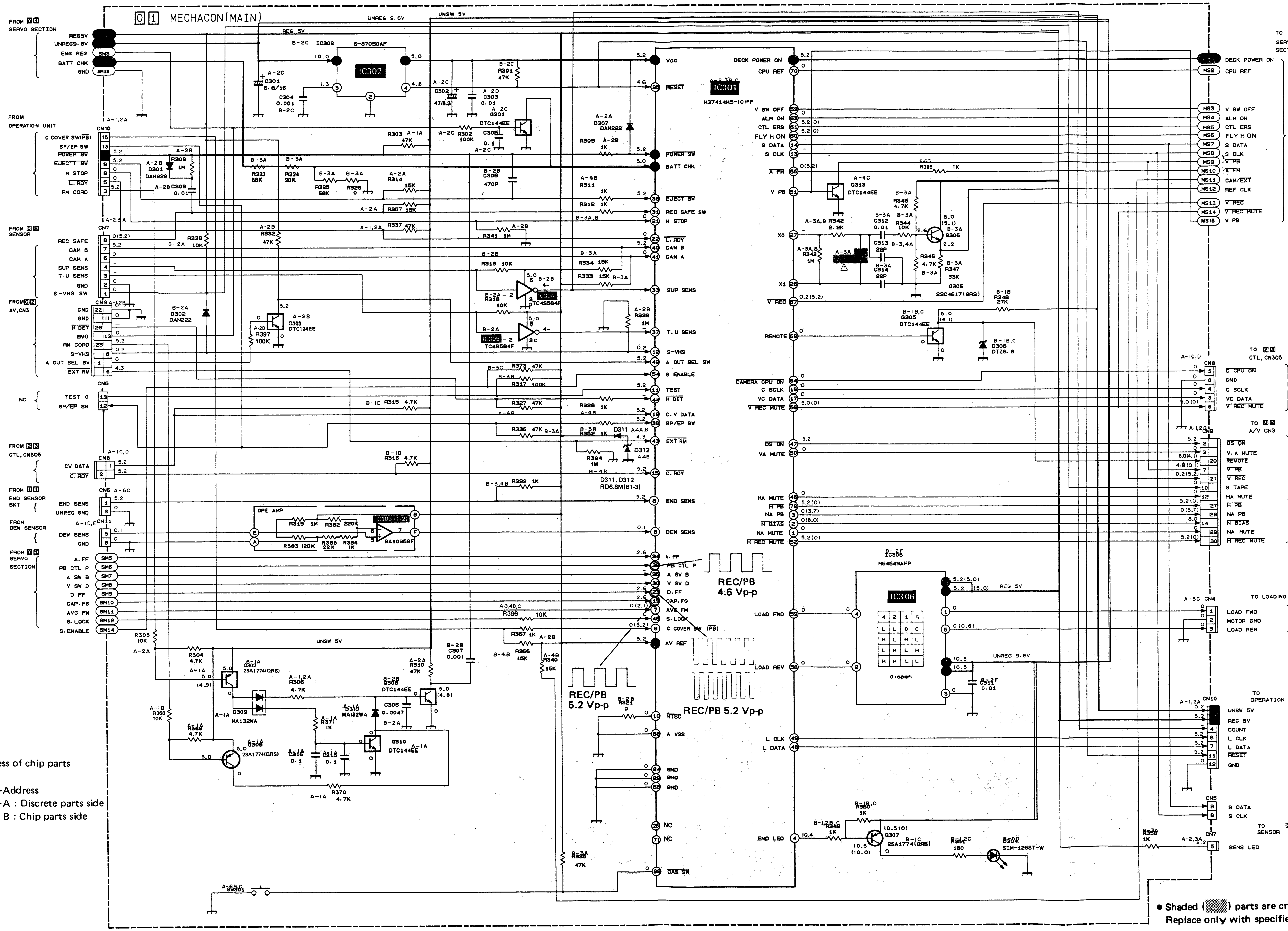
Q123,Q124 UMG2
Q251 2SA1576(RS)
Q252 DTC144EE
FT101
FT102
REG 8 V
Q104 XP4601
IC102 JCY0002A1
REG CHECK
IC252 LB1617M -J
ROTATE CONTROL
HALL REG
DRIVE AMP
REF REG
Q106 UMZ1
REG 5 V
Q123
Q124
To CAPSTAN MOTOR
HG1 (−)
COIL 2
HG1 (+)
HG3 (+)
COIL 3
MR 5V
FG (+)
FG (−)
MR GND
HG BIAS (−)
HG 2 (+)
HG 2 (−)
HG BIAS (+)
HG 3 (−)
COIL 1
From 2 3 CTL CN305
FRAME PULSE
To FLYING ERASE HEAD
GND
FLY H(−)
FLY H(+)
From/To 0 9 PRE/REC AMP CN 1
V TP FM
V SW-C
V SW-A
V SW-D
V SW-B
V GND
V REC MUTE
A SW-B
A SW-D
A SW-A
A SW-C
A GND
A TP FM
REC/PB 5.2 Vp-p
REC/PB 2.7 Vp-p
Q101
Q103
Q102
IC101 JCY0001A2
REV TRACK DET
DIGITAL TRACKING
CAPSTAN PHASE DET
CAPSTAN COUNTER
SWITCH PULSE GEN
DRUM 5V CONT
DRUM PHASE DET
DRUM REF COUNTER
CAPSTAN FV CONV
CAPSTAN CTL
REC CTL
SYSTEM CLOCK
SYNC PULSE GEN
SYSTEM SELECT
PHASE MONITOR
MODE CTL
TP106 DRUM PC/FG
R103 PB SWITCHING POINT
TP105 DRUM MON
TP104 CAP MON
REC/PB 5.2 Vp-p
REC/PB 5.2 Vp-p
Q601
Q602
Q603
Q604
DRUM MDA
DRUM PG TP108
IC251 VC5035
HALL AMP & DRIVE WAVE MIXER
DIFERANCE AMP & GAIN VARIABLE AMP & DRIVE
START/STOP
ERROR AMP
TP107 DRUM FG
To DRUM MOTOR
H3 (+)
H1 (+)
HB (+)
H1 (−)
L2
L3
L1
H3 (−)
H2 (−)
HB (−)
H2 (+)
DRUM FG (+)
DRUM FG (−)
DRUM PG (−)
DRUM PG (+)
REC/PB 4.0 Vp-p
REG 5 V
D251
To OPE UNIT,CN1
ALARM SIG
From/To 0 2 A/V,CN3
A FF
V PULSE ON
COMP SYNC
V FF
H FF
SP
V PULSE
YNR PULSE
D101 MA132WK
Q101,Q103 UN9213
Q102 UN9214
D105 DAN222
Q601 2SA1577(QR)
Q602,Q603,Q604 2SC4617(RS)
E
F
G
5-11
5-12
I
J
K
L

5.7 MECHACON SCHEMATIC DIAGRAM

- Waveform
  REC : Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.

- Voltage
  REC : Y/C separator input, color bar SP mode, VHS mode.
  PB : Alignment tape, color bar SP mode, VHS mode.

*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.


01 MECHACON(MAIN)
FROM 02 SERVO SECTION
REG5V
UNREG9.6V
EMG REG
BATT CHK
GND
FROM OPERATION UNIT
C COVER SW(PB)
SP/EP SW
POWER SW
EJECT SW
H STOP
L.RDY
RM CORD
FROM 05 SENSOR
REC SAFE
CAM B
CAM A
SUP SENS
T.U SENS
GND
S-VHS SW
FROM 02 AV,CN3
H DET
EMG
RM CORD
S-VHS
A OUT SEL SW
EXT RM
TEST
SP/EP SW
FROM 03 CTL,CN305
CV DATA
C.RDY
FROM 06 END SENSOR BKT
END SENS
UNREG GND
FROM DEW SENSOR
DEW SENS
FROM 02 SERVO SECTION
A.FF
PB CTL P
A SW B
V SW D
D FF
CAP.FG
AVG FM
S.LOCK
S.ENABLE
IC302 S-87050AF
IC301 M37414M5-101FP
IC304 TC4S584F
IC305 TC4S584F
IC106 (1/2) BA10358F
IC306 M54543AFP
OPE AMP
Q301 DTC144EE
Q302 2SA1774(QRS)
Q303 DTC124EE
Q305 DTC144EE
Q306 2SC4617(QRS)
Q307 2SA1774(QRS)
Q308 DTC144EE
Q309 2SA1774(QRS)
Q310 DTC144EE
Q313 DTC144EE
D301 DAN222
D302 DAN222
D306 DTZ6.8
D307 DAN222
D309 MA132WA
D310 MA132WA
D311, D312 RD6.8M(B1-3)
D304 SIM-125ST-W
SW301
Vcc
RESET
POWER SW
BATT CHK
EJECT SW
REC SAFE SW
H STOP
L.RDY
CAM B
CAM A
SUP SENS
T.U SENS
S-VHS
A OUT SEL SW
S ENABLE
TEST
H DET
C.V DATA
SP/EP SW
EXT RM
C.RDY
END SENS
DEW SENS
A.FF
PB CTL P
A SW B
V SW D
D.FF
CAP.FG
AVG FM
S.LOCK
C COVER SW (PB)
AV REF
NTSC
A VSS
GND
NC
CAS SW
DECK POWER ON
CPU REF
V SW OFF
ALM ON
CTL ERS
FLY H ON
S DATA
S CLK
A FM
V PB
X0
X1
V REC
REMOTE
CAMERA CPU ON
C SCLK
VC DATA
V REC MUTE
OS ON
VA MUTE
HA MUTE
H PB
NA PB
N BIAS
NA MUTE
H REC MUTE
LOAD FWD
LOAD REV
L CLK
L DATA
END LED
REC/PB 4.6 Vp-p
REC/PB 5.2 Vp-p
REC/PB 5.2 Vp-p
TO 02 SERVO SECTION
DECK POWER ON
CPU REF
V SW OFF
ALM ON
CTL ERS
FLY H ON
S DATA
S CLK
V PB
A FM
CAM/EXT
REF CLK
V REC
V REC MUTE
V PB
TO 03 CTL,CN305
C CPU ON
GND
C SCLK
VC DATA
V REC MUTE
TO 02 A/V CN3
OS ON
V.A MUTE
REMOTE
V PB
V REC
S TAPE
HA MUTE
H PB
NA PB
N BIAS
NA MUTE
H REC MUTE
TO LOADING MOTOR
LOAD FWD
MOTOR GND
LOAD REW
TO OPERATION UNIT
UNSW 5V
REG 5V
COUNT
L CLK
L DATA
RESET
GND
S DATA
S CLK
NC
TO SENSOR 05
SENS LED
0:open
6
5
4
3
2
1
A
B
C
D
E
F
G
H

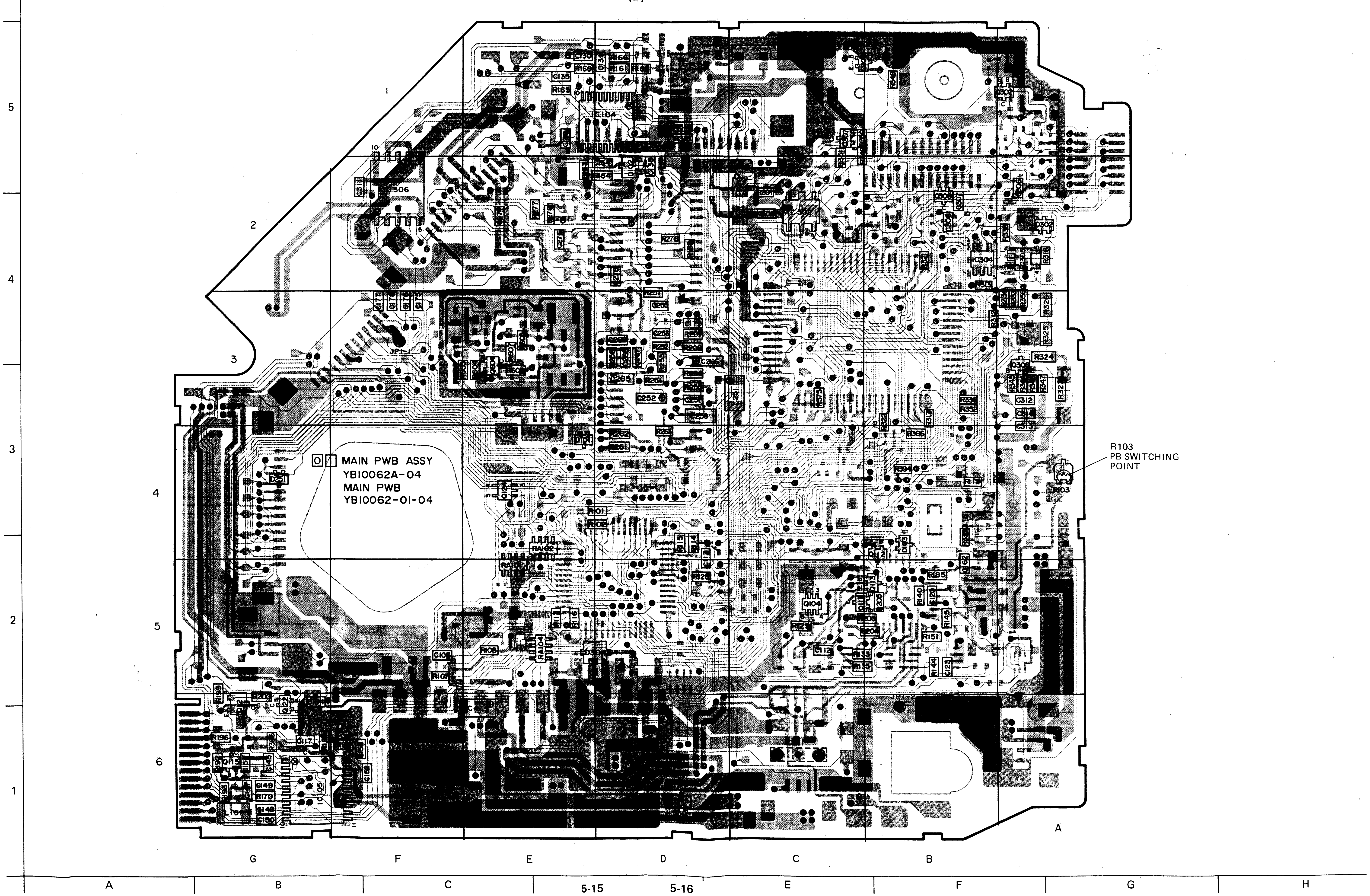
- Address of chip parts

A-1D
Address
A : Discrete parts side
B : Chip parts side

- Shaded (▨) parts are critical for safety. Replace only with specified part number.

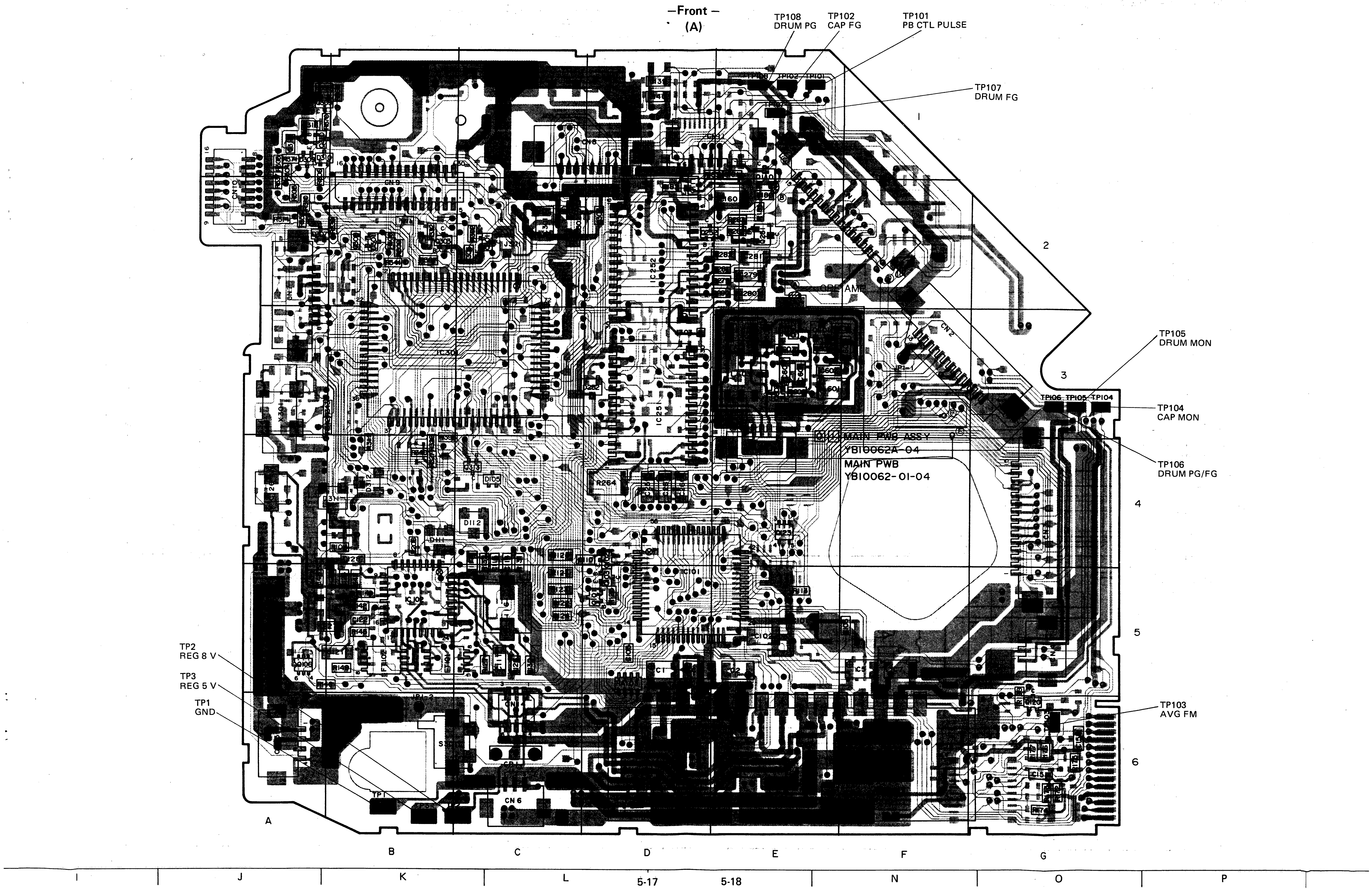
5.8 MAIN CIRCUIT BOARD

— Rear —
(B)

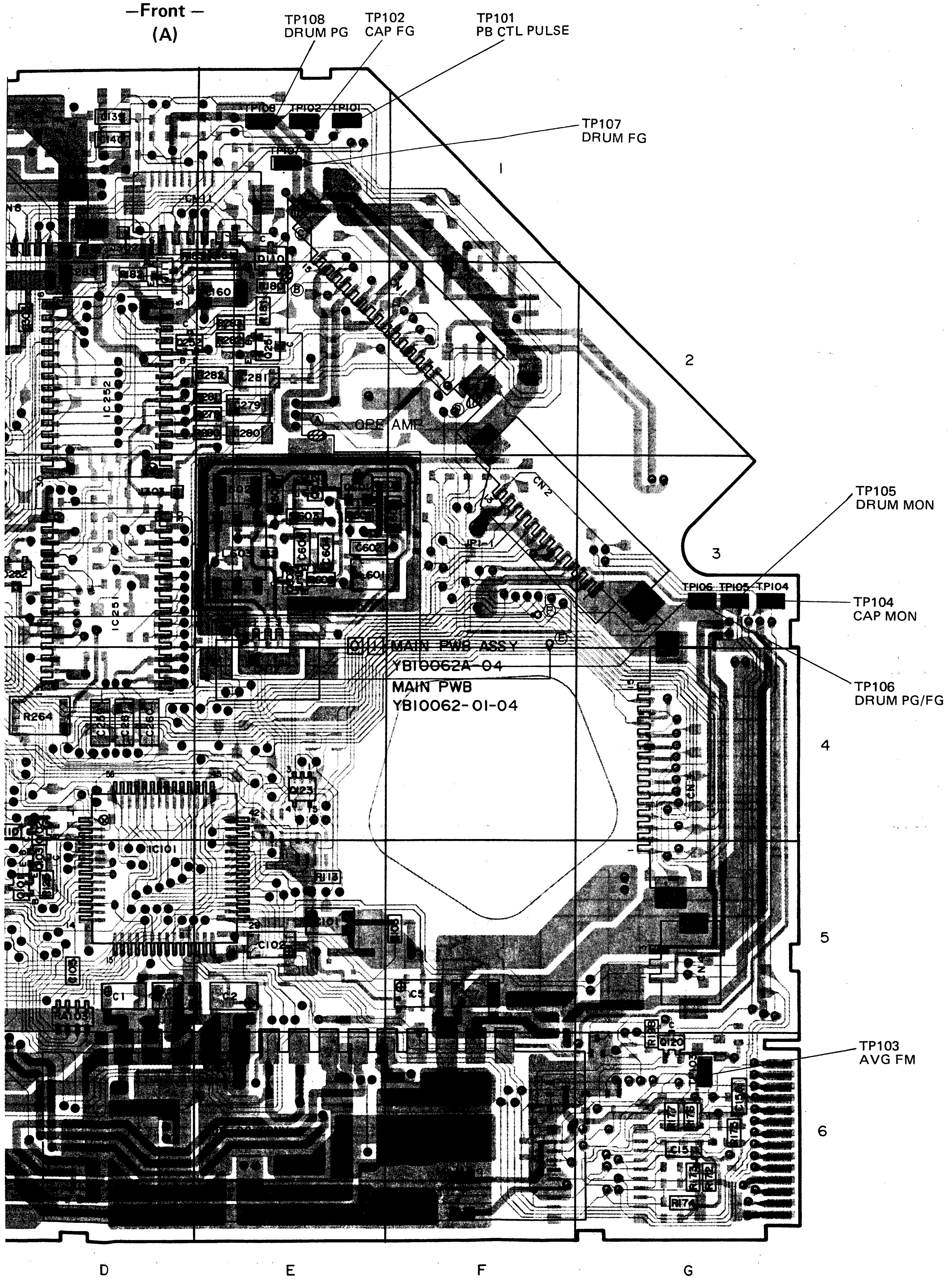


R103
PB SWITCHING POINT

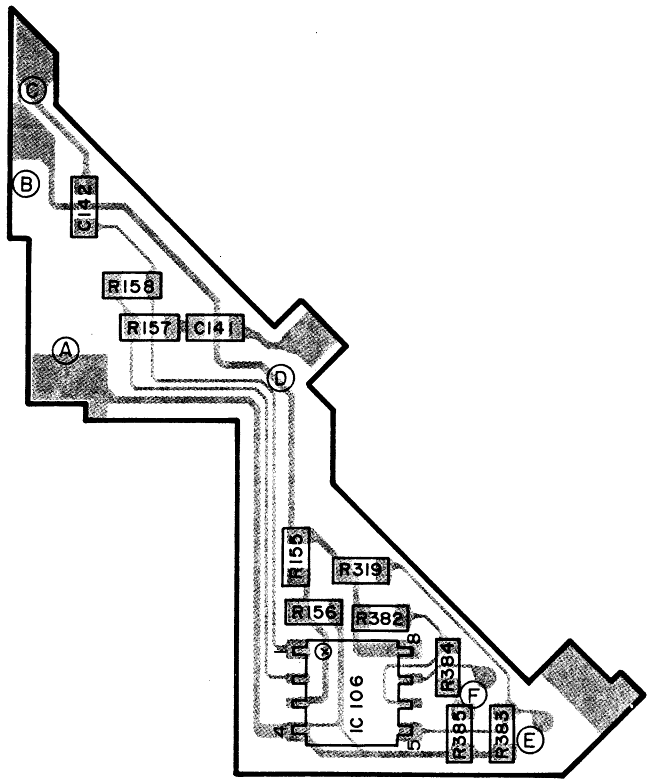
MAIN PWB ASSY
YB10062A-04
MAIN PWB
YB10062-01-04
IC104
IC306
IC304
JP1
R103
1
2
3
4
5
6
G
F
E
D
C
B
A
A
B
C
E
F
G
H


—Front —
(A)
TP108
DRUM PG
TP102
CAP FG
TP101
PB CTL PULSE
TP107
DRUM FG
TP105
DRUM MON
TP104
CAP MON
TP106
DRUM PG/FG
TP103
AVG FM
TP2
REG 8 V
TP3
REG 5 V
TP1
GND
MAIN PWB ASSY
YB10062A-04
MAIN PWB
YB10062-01-04
1
2
3
4
5
6
A
B
C
D
E
F
G
I
J
K
L
N
O
P

–Front –
(A)


TP108
DRUM PG
TP102
CAP FG
TP101
PB CTL PULSE
TP107
DRUM FG
TP105
DRUM MON
TP104
CAP MON
TP106
DRUM PG/FG
TP103
AVG FM
OPE AMP
MAIN PWB ASSY
YB10062A-04
MAIN PWB
YB10062-01-04
1
2
3
4
5
6
D
E
F
G

– OPE AMP –


C142
R158
R157
C141
R155
R319
R156
R382
R384
IC 106
R385
R383
A
B
C
D
E
F

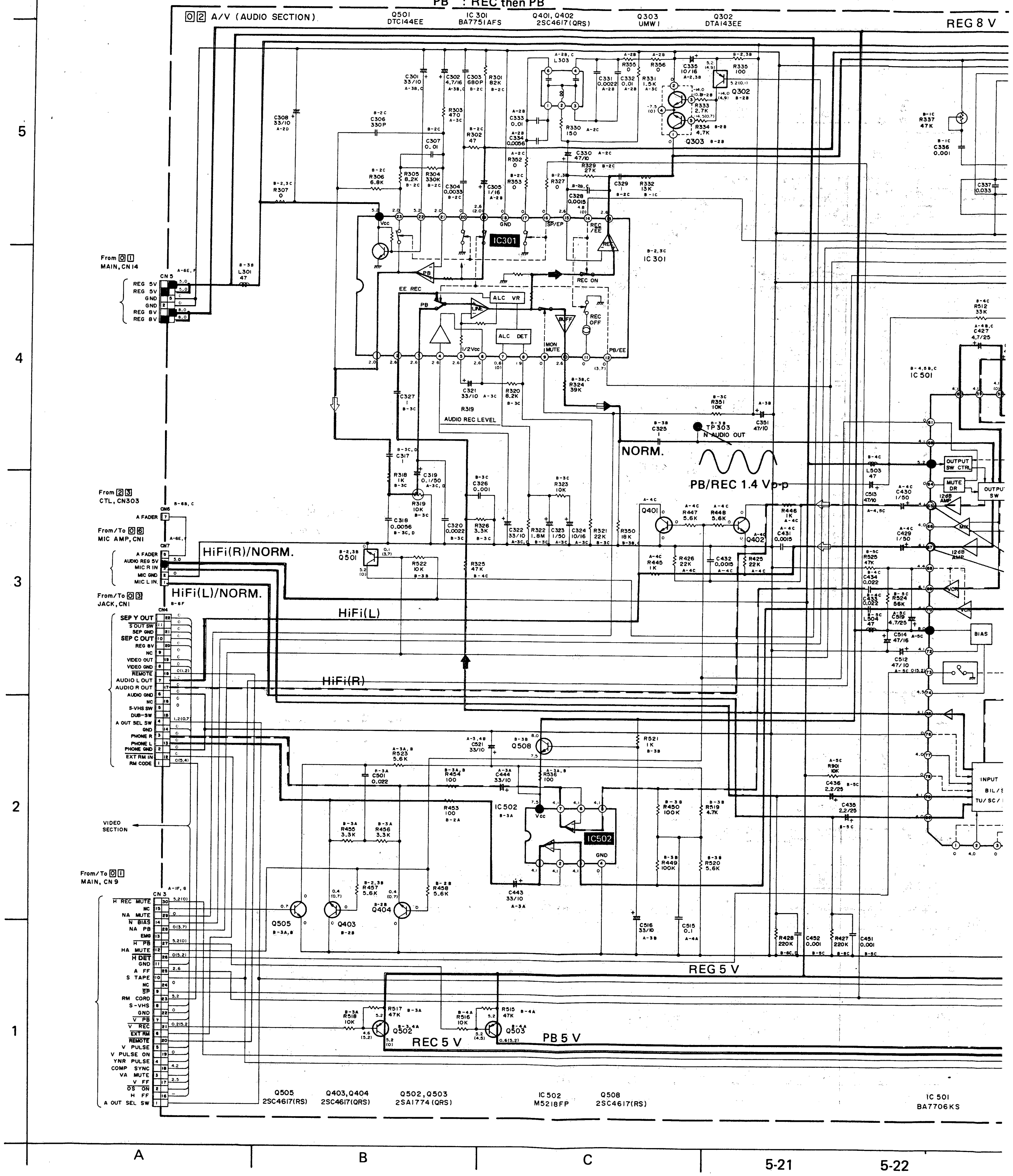
OPE AMP PWB YB20377-01-01
OPE AMP PWB ASS'Y YB20377A-01

5.9 AUDIO SCHEMATIC DIAGRAM

● Voltage
REC : EXT input, 1 kHz, –8 dBs
SP mode, Hi-Fi mode
PB : REC then PB

*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.

● Sha
Rep


6
5
4
3
2
1
A
B
C
02 A/V (AUDIO SECTION)
Q501 DTC144EE
IC301 BA7751AFS
Q401, Q402 2SC4617(QRS)
Q303 UMW1
Q302 DTA143EE
REG 8 V
From 01 MAIN, CN14
CN5
REG 5V
REG 5V
GND
GND
REG 8V
REG 8V
From 23 CTL, CN303
CN6
A FADER
From/To 06 MIC AMP, CN1
CN7
A FADER
AUDIO REG 5V
MIC R IN
MIC GND
MIC L IN
From/To 03 JACK, CN1
CN4
SEP Y OUT
S OUT SW
SEP GND
SEP C OUT
REG 8V
NC
VIDEO OUT
VIDEO GND
REMOTE
AUDIO L OUT
AUDIO R OUT
AUDIO GND
NC
S-VHS SW
DUB-SW
A OUT SEL SW
GND
PHONE R
PHONE L
PHONE GND
EXT RM IN
RM CODE
VIDEO SECTION
From/To 01 MAIN, CN9
CN3
H REC MUTE
NC
NA MUTE
N BIAS
NA PB
EMG
H PB
HA MUTE
H DET
GND
A FF
S TAPE
NC
SP
RM CORD
S-VHS
GND
V PB
V REC
EXT RM
REMOTE
V PULSE
V PULSE ON
YNR PULSE
COMP SYNC
VA MUTE
V FF
OS ON
H FF
A OUT SEL SW
IC301
ALC VR
ALC DET
LINE
BUFF
EE REC
REC ON
REC OFF
MON MUTE
PB/EE
SP/EP
REC I/EE
1/2Vcc
AUDIO REC LEVEL
TP303
N AUDIO OUT
NORM.
PB/REC 1.4 Vp-p
HiFi(R)/NORM.
HiFi(L)/NORM.
HiFi(L)
HiFi(R)
IC502
Vcc
GND
IC501
OUTPUT SW CTRL
MUTE DR
OUTPUT SW
BIAS
INPUT
TU/SC/
REG 5 V
REC 5 V
PB 5 V
Q505 2SC4617(RS)
Q403, Q404 2SC4617(QRS)
Q502, Q503 2SA1774(QRS)
IC502 M5218FP
Q508 2SC4617(RS)
IC501 BA7706KS

5.9 AUDIO SCHEMATIC DIAGRAM

- Voltage

  REC : EXT input, 1 kHz, –8 dBs
  SP mode, Hi-Fi mode

  PB : REC then PB

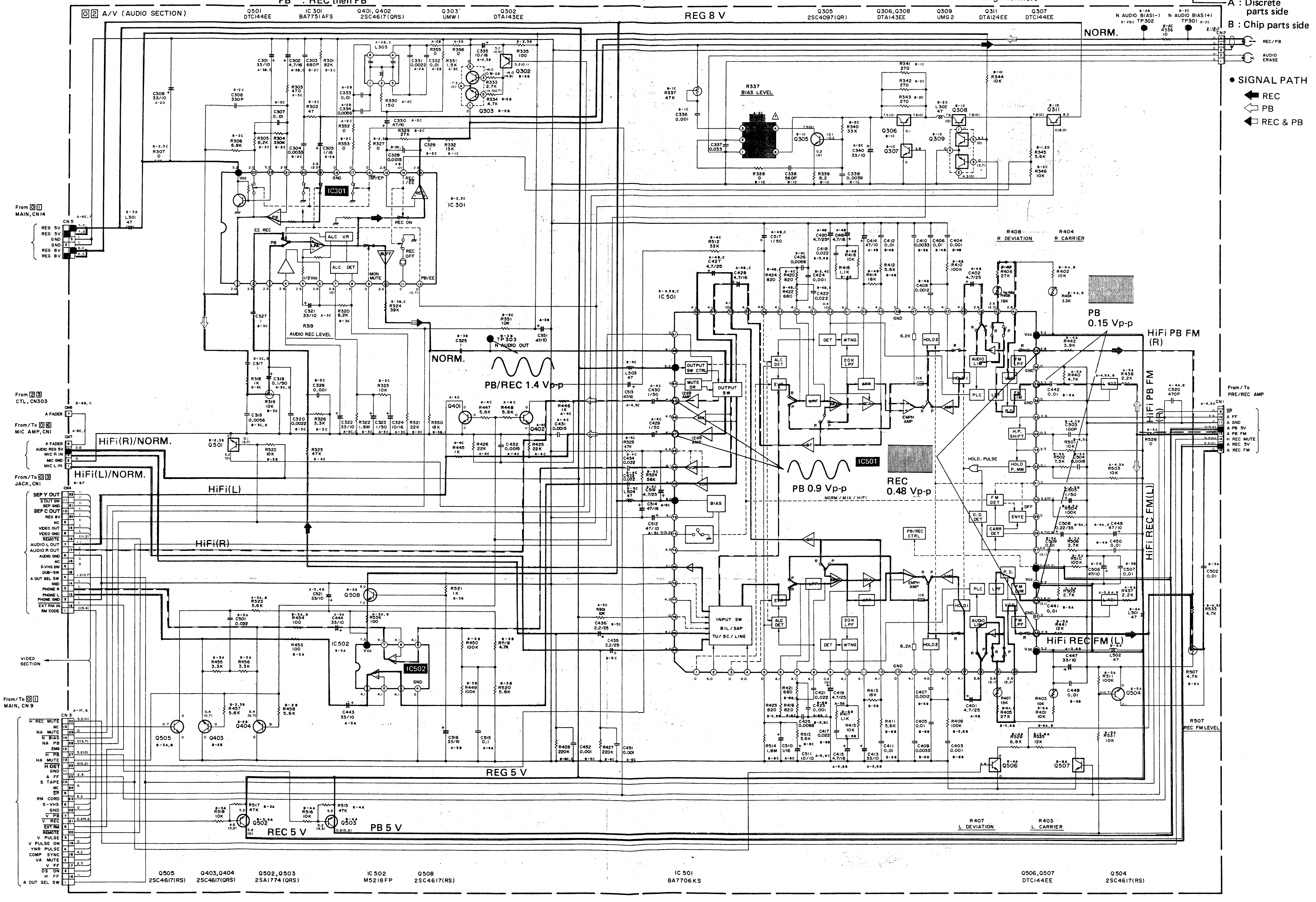
*Where voltage differ between recording and palyabck, the voltage during playback is shown in parenthesis.

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

Waveform:
Waveforms of video signal were measured in the following menner.

- Address of chip parts

A-1D
Address
A : Discrete parts side
B : Chip parts side

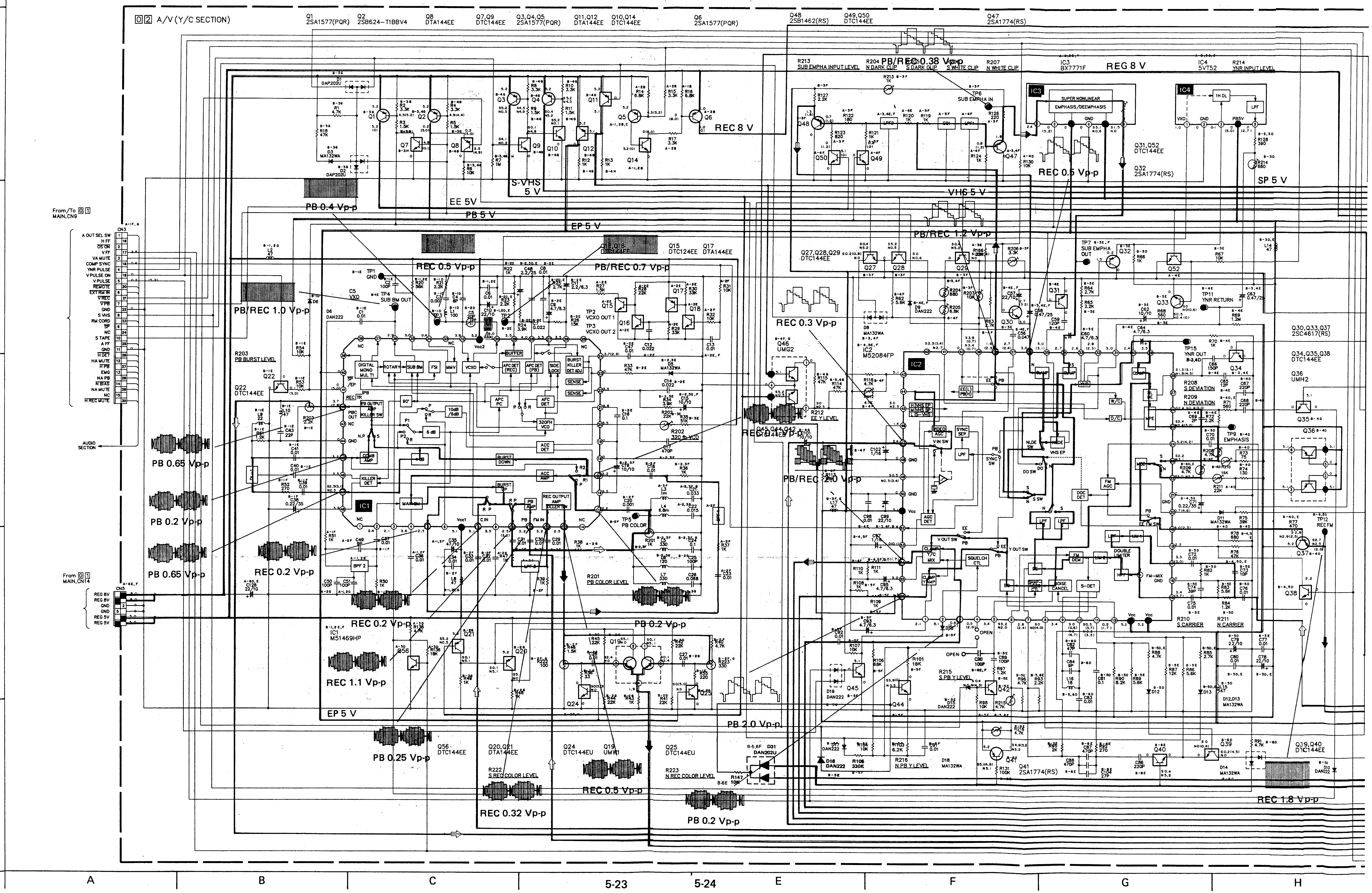


02 A/V (AUDIO SECTION)
Q501 DTC144EE
IC 301 BA7751AFS
Q401, Q402 2SC4617(QRS)
Q303 UMW1
Q302 DTA143EE
REG 8 V
Q305 2SC4097(QR)
Q306,Q308 DTA143EE
Q309 UMG 2
Q311 DTA124EE
Q307 DTC144EE
NORM.
N AUDIO BIAS(–) TP302
N AUDIO BIAS(+) TP301
R336 10
CN2
REC/PB
AUDIO ERASE
R337 BIAS LEVEL
L303
Q302
Q303
IC301
IC 301
REC ON
EE REC
PB
ALC VR
ALC DET
LINE
MON MUTE
REC OFF
PB/EE
SP/EP
REC /EE
BUFF
I/2Vcc
R319 AUDIO REC LEVEL
TP303 N AUDIO OUT
NORM.
PB/REC 1.4 Vp-p
Q401
Q402
From 01 MAIN, CN14
CN5
REG 5V
REG 5V
GND
GND
REG 8V
REG 8V
From 23 CTL, CN303
CN6
A FADER
From/To 06 MIC AMP, CN1
CN7
A FADER
AUDIO REG 5V
MIC R IN
MIC GND
MIC L IN
HiFi(R)/NORM.
HiFi(L)/NORM.
HiFi(L)
HiFi(R)
Q501
From/To 03 JACK, CN1
CN4
SEP Y OUT
S OUT SW
SEP GND
SEP C OUT
REG 8V
NC
VIDEO OUT
VIDEO GND
REMOTE
AUDIO L OUT
AUDIO R OUT
AUDIO GND
NC
S-VHS SW
DUB-SW
A OUT SEL SW
GND
PHONE R
PHONE L
PHONE GND
EXT RM IN
RM CODE
VIDEO SECTION
From/To 01 MAIN, CN 9
CN3
H REC MUTE
NC
NA MUTE
N BIAS
NA PB
EMG
H PB
HA MUTE
H DET
GND
A FF
S TAPE
NC
SP
RM CORD
S-VHS
GND
V PB
V REC
EXT RM
REMOTE
V PULSE
V PULSE ON
YNR PULSE
COMP SYNC
VA MUTE
V FF
OS ON
H FF
A OUT SEL SW
Q508
IC502
Vcc
GND
Q505
Q403
Q404
REG 5 V
Q502
REC 5 V
Q503
PB 5 V
Q505 2SC4617(RS)
Q403,Q404 2SC4617(QRS)
Q502,Q503 2SA1774(QRS)
IC 502 M5218FP
Q508 2SC4617(RS)
IC 501 BA7706KS
Q506,Q507 DTC144EE
Q504 2SC4617(RS)
IC 501
OUTPUT SW CTRL
MUTE DR
OUTPUT SW
12dB AMP
MIX
BIAS
INPUT SW
BIL/SAP
TU/SC/LINE
ALC DET
DET
WTNG
20K LPF
EMPH AMP
LIM
HOLD 1
HOLD 2
AUDIO LIM
PLC
LPF
FM MOD
FM LPF
H.P. SHIFT
HOLD P. MM
HOLD. PULSE
FM DET
D.O. DET
CARR DET
ENVE
PB/REC CTRL
P.D.
GND
Vcc
PB 0.9 Vp-p
IC501
REC 0.48 Vp-p
NORM / MIX / HIFI
PB 0.15 Vp-p
HiFi PB FM (R)
HiFi PB FM (L)
HiFi REC FM (R)
HiFi REC FM (L)
R408 R DEVIATION
R404 R CARRIER
R407 L DEVIATION
R403 L CARRIER
R507 REC FM LEVEL
Q506
Q507
Q504
From/To PRE/REC AMP
CN1
SP
A FF
A GND
A PB 5V
A PB FM
H REC MUTE
A REC 5V
A REC FM
6
5
4
3
2
1
A
B
C
D
E
F
G
H

- SIGNAL PATH
  - REC
  - PB
  - REC & PB

5.10 Y/C SCHEMATIC DIAGRAM

DC VOLTAGE:
- Input signal from the camera was measured by a digital voltmeter in SP REC and SP PLAY moeds.
- Whem the measured voltages were different in REC and PLAY modes, voltage measured in PLAY mode is shown in parentheses ( ).
- Measurement only for S-VHS mode is indicated by S.
- Measurement only for N (conventional/normal) mode is indicated by N.
- **Shaded (▨) parts are critical for safety. Replace only with specified part numbers.**



02 A/V (Y/C SECTION)
Q1 2SA1577(PQR)
Q2 2SB624-T1BBV4
Q8 DTA144EE
Q7,Q9 DTC144EE
Q3,Q4,Q5 2SA1577(PQR)
Q11,Q12 DTA144EE
Q10,Q14 DTC144EE
Q6 2SA1577(PQR)
Q48 2SB1462(RS)
Q49,Q50 DTC144EE
Q47 2SA1774(RS)
R213 SUB EMPHA INPUT LEVEL
R204 N DARK CLIP
R205 S DARK CLIP
R206 S WHITE CLIP
R207 N WHITE CLIP
IC3 BX7771F
REG 8 V
IC4 5VT52
R214 YNR INPUT LEVEL
SUPER NONLINEAR EMPHASIS/DEEMPHASIS
1H DL
LPF
REC 8 V
S-VHS 5 V
EE 5V
PB 5 V
EP 5 V
VHS 5 V
SP 5 V
PB 0.4 Vp-p
PB/REC 0.38 Vp-p
REC 0.5 Vp-p
PB/REC 1.2 Vp-p
PB/REC 0.7 Vp-p
PB/REC 1.0 Vp-p
REC 0.3 Vp-p
PB 0.65 Vp-p
PB 0.2 Vp-p
REC 0.2 Vp-p
REC 1.1 Vp-p
PB 0.25 Vp-p
REC 0.32 Vp-p
REC 0.5 Vp-p
PB 0.2 Vp-p
PB 2.0 Vp-p
PB/REC 2.0 Vp-p
REC 1.8 Vp-p
From/To 01 MAIN,CN9
CN3
A OUT SEL SW
H FF
OS ON
V FF
VA MUTE
COMP SYNC
YNR PULSE
V PULSE ON
V PULSE
REMOTE
EXT RM IN
V REC
VPB
GND
S VHS
RM CORD
SP
NC
S TAPE
A FF
GND
H DET
HA MUTE
H PB
EMG
NA PB
N BIAS
NA MUTE
NC
H REC MUTE
AUDIO SECTION
From 01 MAIN,CN14
CN5
REG 8V
REG 8V
GND
GND
REG 5V
REG 5V
Q15 DTC124EE
Q17 DTA144EE
Q27,Q28,Q29 DTC144EE
TP1 GND
TP4 SUB BM OUT
TP2 VCXO OUT 1
TP3 VCXO OUT 2
TP5 PB COLOR
TP6 SUB EMPHA IN
TP7 SUB EMPHA OUT
TP11 YNR RETURN
TP12 REC FM
TP15 YNR OUT
TP9 EMPHASIS
D6 DAN222
D8 MA132WA
IC2 M52084FP
IC1 M51469HP
Q46 UMG2
Q22 DTC144EE
R203 PB BURST LEVEL
R202 320 fH VCO
R201 PB COLOR LEVEL
R212 EE Y LEVEL
R208 S DEVIATION
R209 N DEVIATION
R210 S CARRIER
R211 N CARRIER
R215 S PB Y LEVEL
R216 N PB Y LEVEL
R222 S REC COLOR LEVEL
R223 N REC COLOR LEVEL
DIGITAL MONO MULTI
ROTARY
SUB BM
FSI
MMV
VCXO
BUFFER
APC DET (REC)
APC DET (PB)
SIDE LOCK
BURST KILLER DET ADJ
SENSE
PB OUTPUT AMP KILLER SW
APC PC
AFC DET
320FH VCO
COMB AMP
KILLER DET
ACC DET
BURST DOWN
ACC AMP
BURST UP
MAIN BM
REC OUTPUT AMP KILLER SW
PB AMP
C IN
FM IN
BPF 2
LPF 2
10dB /6dB
6 dB
AGC DET
VIDEO AGC
SYNC SEP
V IN SW
NLDE SW
VHS EP
DO SW
S SW
DOC DET
FM AGC
W/C
D/C
MPE
CLAMP Y/C MIX
CLAMP Y AMP
SQUELCH CTL
V OUT SW
Y OUT SW
FM DEM
DOUBLE LIMITER
FM-MIX
NOISE CANCEL
S-DET
EE(L) PB(H)
Q30,Q33,Q37 2SC4617(RS)
Q34,Q35,Q38 DTC144EE
Q36 UMH2
Q31,Q52 DTC144EE
Q32 2SA1774(RS)
Q45,Q44,Q42 DTC144EE
Q56 DTC144EE
Q20,Q21 DTA144EE
Q24 DTC144EU
Q19 UMW1
Q25 DTC144EU
D31 DAN202U
Q41 2SA1774(RS)
Q39,Q40 DTC144EE
D12,D13 MA132WA
D18 MA132WA
D14 MA132WA

A
B
C
5-23
5-24
E
F
G
H

Whem the measured voltages were different in REC and PLAY modes, voltage measured in PLAY mode is shown in parentheses (   ).

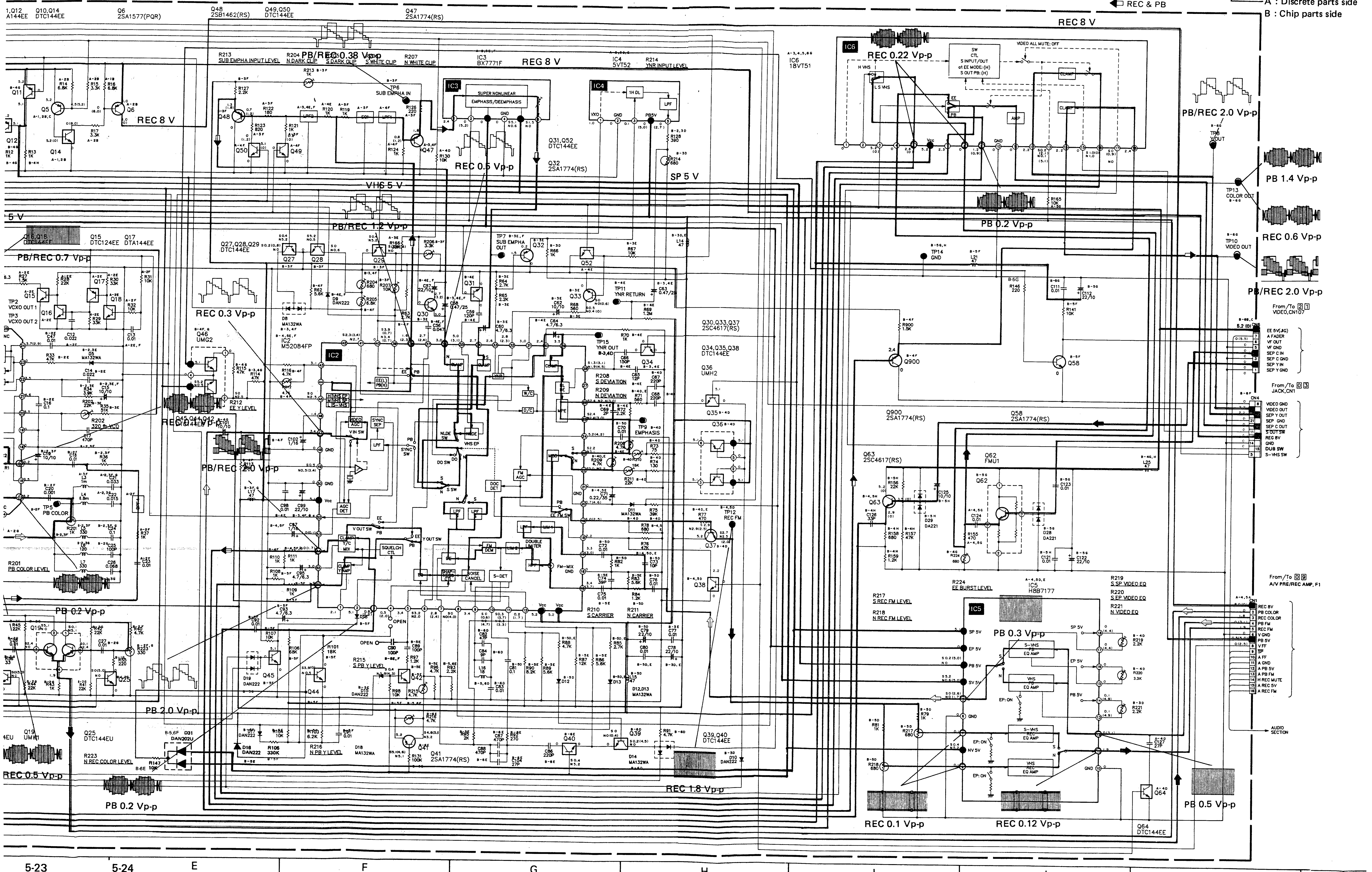
- Measurement only for S-VHS mode is indicated by S.
- Measurement only for N (conventional/normal) mode is indicated by N.

- **Shaded (▨) parts are critical for safety. Replace only with specified part numbers.**

Waveform:
Waveforms of video signal were measured in the following menner.

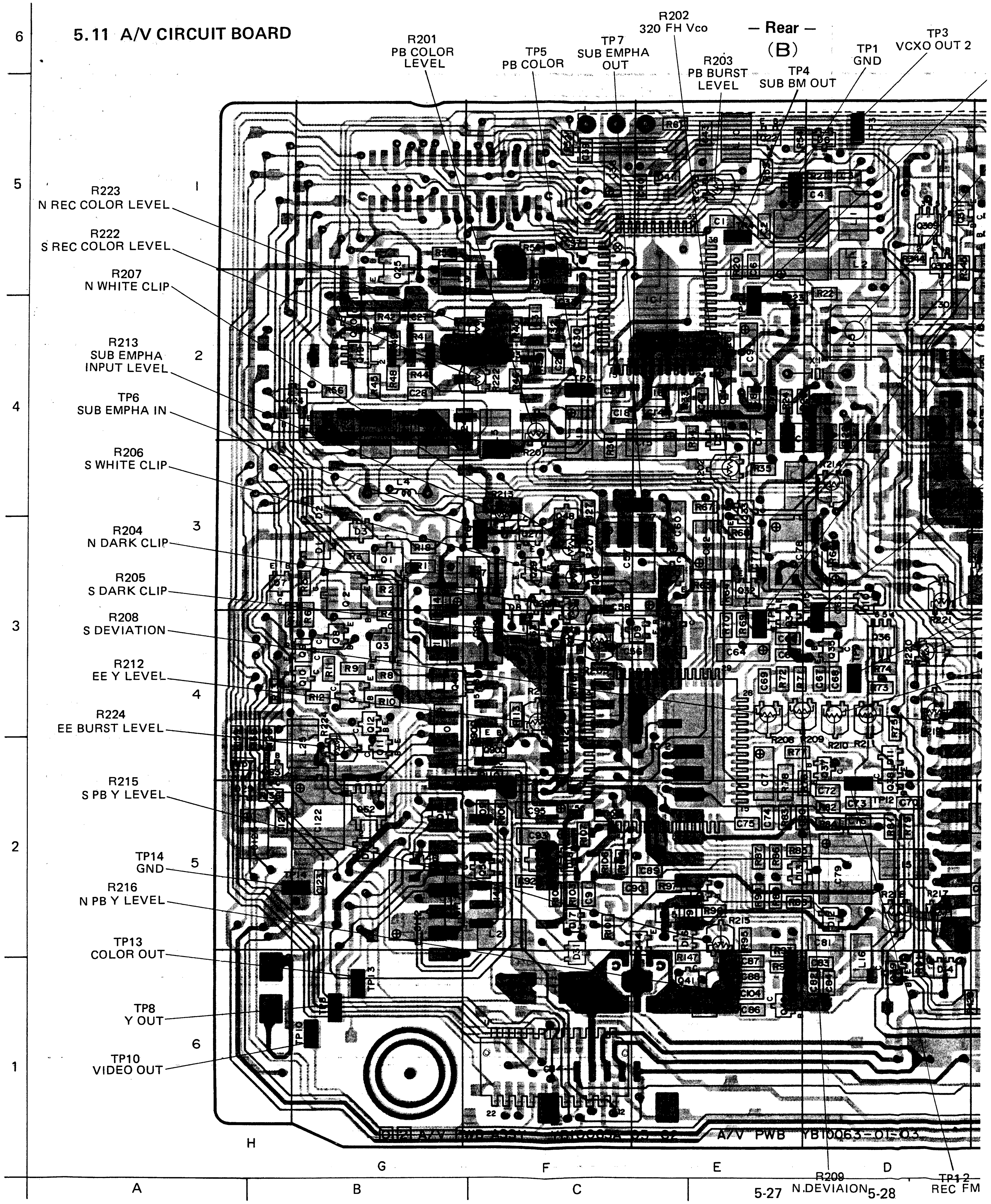
- SIGNAL PATH
  - ⬅ REC
  - ⇦ PB
  - ⬅ REC & PB

- Address of chip parts
  - A-1D
  - 1D — Address
  - A : Discrete parts side
  - B : Chip parts side



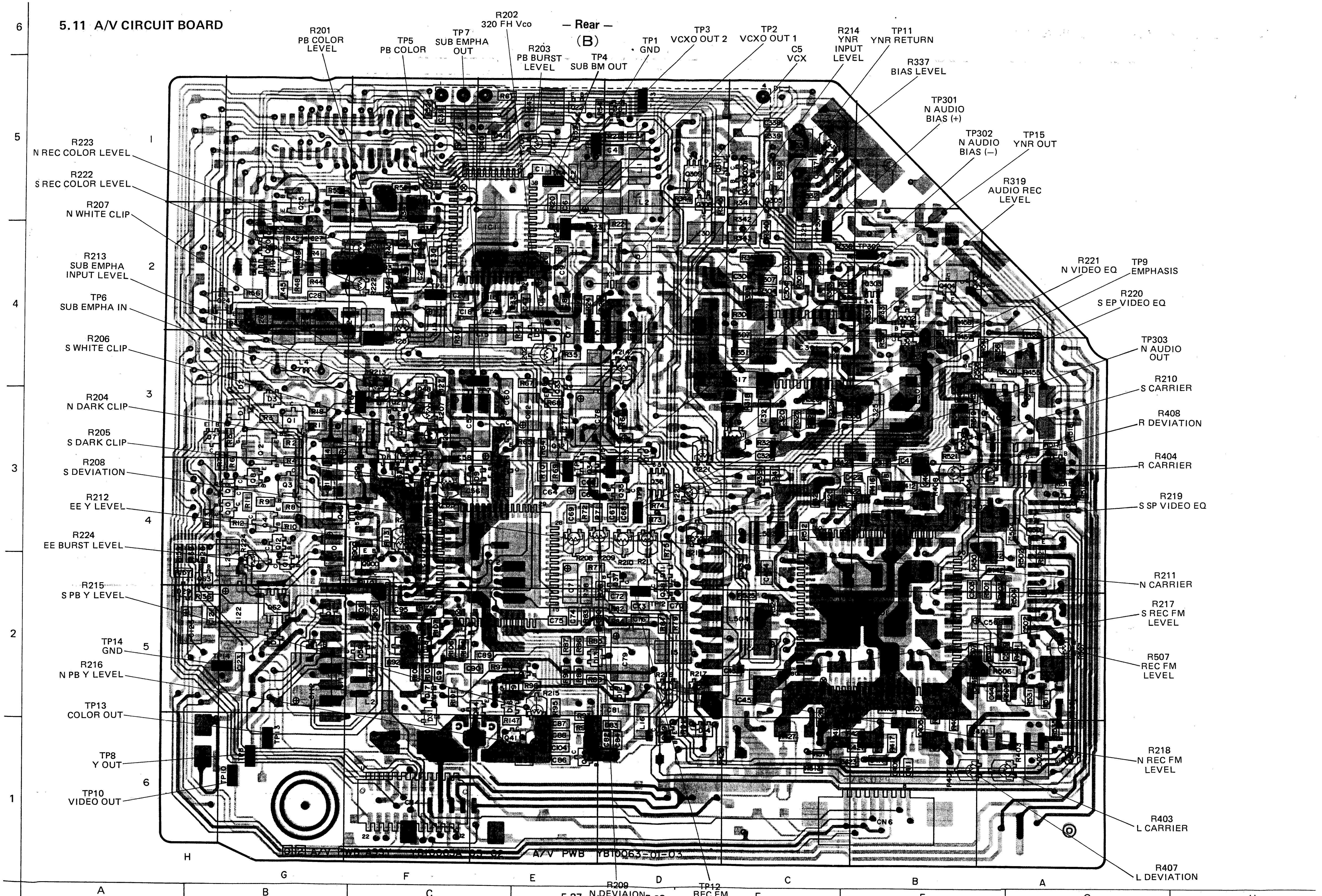
Q10,Q14 DTC144EE
Q6 2SA1577(PQR)
Q48 2SB1462(RS)
Q49,Q50 DTC144EE
Q47 2SA1774(RS)
REC 8 V
R213 SUB EMPHA INPUT LEVEL
R204 N DARK CLIP
PB/REC 0.38 Vp-p
S DARK CLIP
S WHITE CLIP
R207 N WHITE CLIP
IC3 BX7771F
REG 8 V
IC4 5VT52
R214 YNR INPUT LEVEL
IC6 18VT51
REC 0.22 Vp-p
SUPER NONLINEAR EMPHASIS/DEEMPHASIS
1H DL
LPF
TP6 SUB EMPHA IN
Q31,Q52 DTC144EE
Q32 2SA1774(RS)
REC 0.5 Vp-p
SP 5 V
VHS 5 V
PB/REC 1.2 Vp-p
PB/REC 2.0 Vp-p
PB 1.4 Vp-p
TP13 COLOR OUT
REC 0.6 Vp-p
TP10 VIDEO OUT
PB 0.2 Vp-p
Q15 DTC124EE
Q17 DTA144EE
Q16,Q18 DTC144EE
PB/REC 0.7 Vp-p
Q27,Q28,Q29 DTC144EE
TP7 SUB EMPHA OUT
TP11 YNR RETURN
TP14 GND
TP2 VCXO OUT 1
TP3 VCXO OUT 2
REC 0.3 Vp-p
Q46 UMG2
IC2 M52084FP
Q30,Q33,Q37 2SC4617(RS)
Q34,Q35,Q38 DTC144EE
Q36 UMH2
TP15 YNR OUT
R208 S DEVIATION
R209 N DEVIATION
TP9 EMPHASIS
Q900 2SA1774(RS)
Q58 2SA1774(RS)
R212 EE Y LEVEL
Q45,Q44,Q42
PB/REC 2.0 Vp-p
Q63 2SC4617(RS)
Q62 FMU1
TP5 PB COLOR
TP12 REC FM
R201 PB COLOR LEVEL
R224 EE BURST LEVEL
IC5 HBB7177
R217 S REC FM LEVEL
R218 N REC FM LEVEL
R219 S SP VIDEO EQ
R220 S EP VIDEO EQ
R221 N VIDEO EQ
R210 S CARRIER
R211 N CARRIER
PB 0.3 Vp-p
R215 S PB Y LEVEL
R216 N PB Y LEVEL
PB 2.0 Vp-p
Q19 UMW1
Q25 DTC144EU
R223 N REC COLOR LEVEL
REC 0.5 Vp-p
PB 0.2 Vp-p
Q41 2SA1774(RS)
Q39,Q40 DTC144EE
REC 1.8 Vp-p
REC 0.1 Vp-p
REC 0.12 Vp-p
PB 0.5 Vp-p
Q64 DTC144EE
From/To 21 VIDEO,CN107
From/To 03 JACK,CN1
From/To 09 A/V PRE/REC AMP, F1
AUDIO SECTION
E
F
G
H
I
J
K

5.11 A/V CIRCUIT BOARD



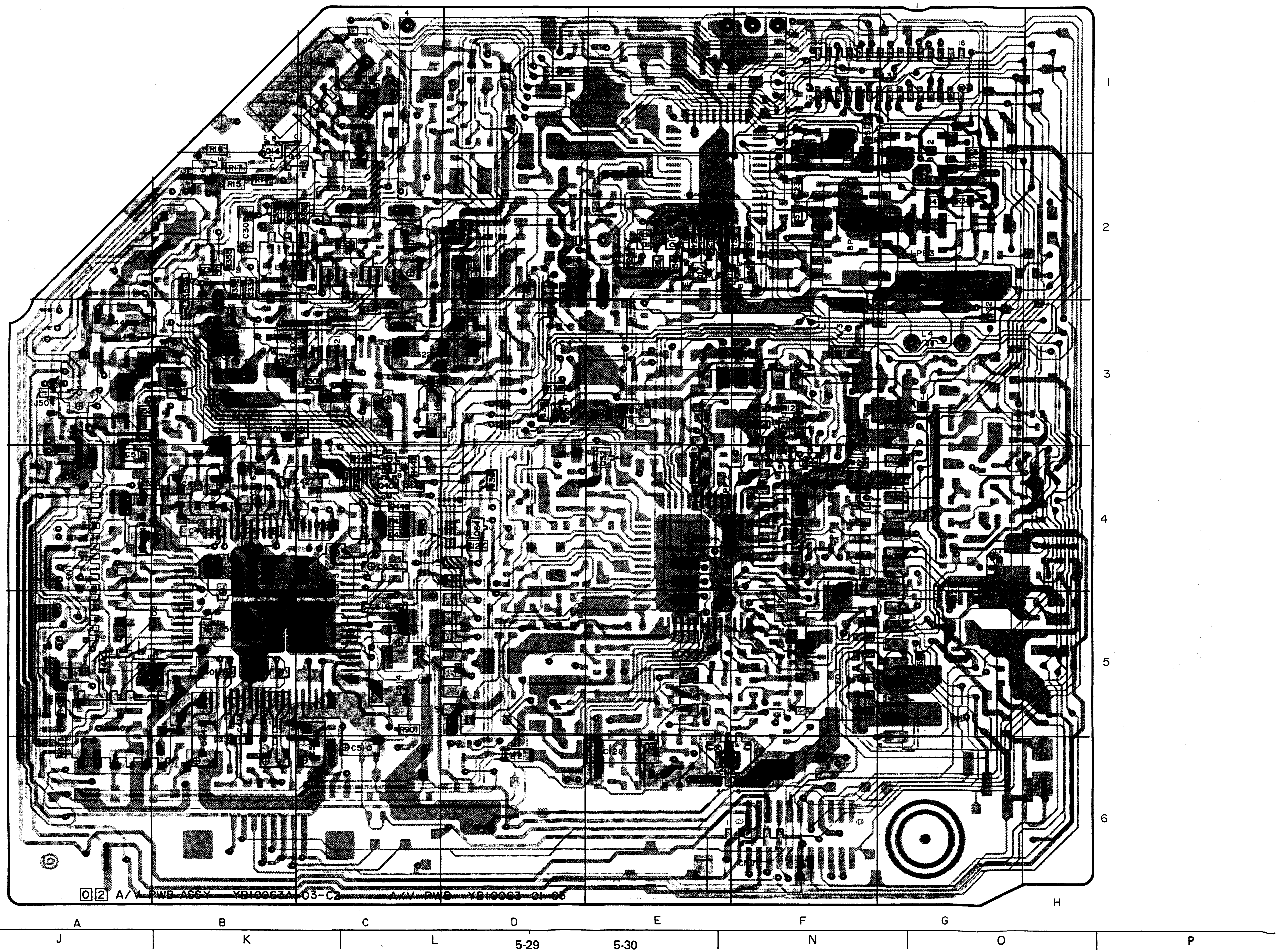
R202
320 FH Vco
– Rear –
(B)
R201
PB COLOR
LEVEL
TP5
PB COLOR
TP7
SUB EMPHA
OUT
R203
PB BURST
LEVEL
TP4
SUB BM OUT
TP1
GND
TP3
VCXO OUT 2
R223
N REC COLOR LEVEL
R222
S REC COLOR LEVEL
R207
N WHITE CLIP
R213
SUB EMPHA
INPUT LEVEL
TP6
SUB EMPHA IN
R206
S WHITE CLIP
R204
N DARK CLIP
R205
S DARK CLIP
R208
S DEVIATION
R212
EE Y LEVEL
R224
EE BURST LEVEL
R215
S PB Y LEVEL
TP14
GND
R216
N PB Y LEVEL
TP13
COLOR OUT
TP8
Y OUT
TP10
VIDEO OUT
R209
N.DEVIAION
TP12
REC FM
A/V PWB YB10063-01-03
1
2
3
4
5
6
A
B
C
D
E
F
G
H

5.11 A/V CIRCUIT BOARD


— Rear —
(B)
R201
PB COLOR
LEVEL
TP5
PB COLOR
TP7
SUB EMPHA
OUT
R202
320 FH Vco
R203
PB BURST
LEVEL
TP4
SUB BM OUT
TP1
GND
TP3
VCXO OUT 2
TP2
VCXO OUT 1
C5
VCX
R214
YNR
INPUT
LEVEL
TP11
YNR RETURN
R337
BIAS LEVEL
TP301
N AUDIO
BIAS (+)
TP302
N AUDIO
BIAS (–)
TP15
YNR OUT
R319
AUDIO REC
LEVEL
R221
N VIDEO EQ
TP9
EMPHASIS
R220
S EP VIDEO EQ
TP303
N AUDIO
OUT
R210
S CARRIER
R408
R DEVIATION
R404
R CARRIER
R219
S SP VIDEO EQ
R211
N CARRIER
R217
S REC FM
LEVEL
R507
REC FM
LEVEL
R218
N REC FM
LEVEL
R403
L CARRIER
R407
L DEVIATION
R223
N REC COLOR LEVEL
R222
S REC COLOR LEVEL
R207
N WHITE CLIP
R213
SUB EMPHA
INPUT LEVEL
TP6
SUB EMPHA IN
R206
S WHITE CLIP
R204
N DARK CLIP
R205
S DARK CLIP
R208
S DEVIATION
R212
EE Y LEVEL
R224
EE BURST LEVEL
R215
S PB Y LEVEL
TP14
GND
R216
N PB Y LEVEL
TP13
COLOR OUT
TP8
Y OUT
TP10
VIDEO OUT
R209
N.DEVIAION
TP12
REC FM
A/V PWB YB10063-01-03
CN6
1
2
3
4
5
6
H
G
F
E
D
C
B
A
6
5
4
3
2
1
A
B
C
D
E
F
G
H

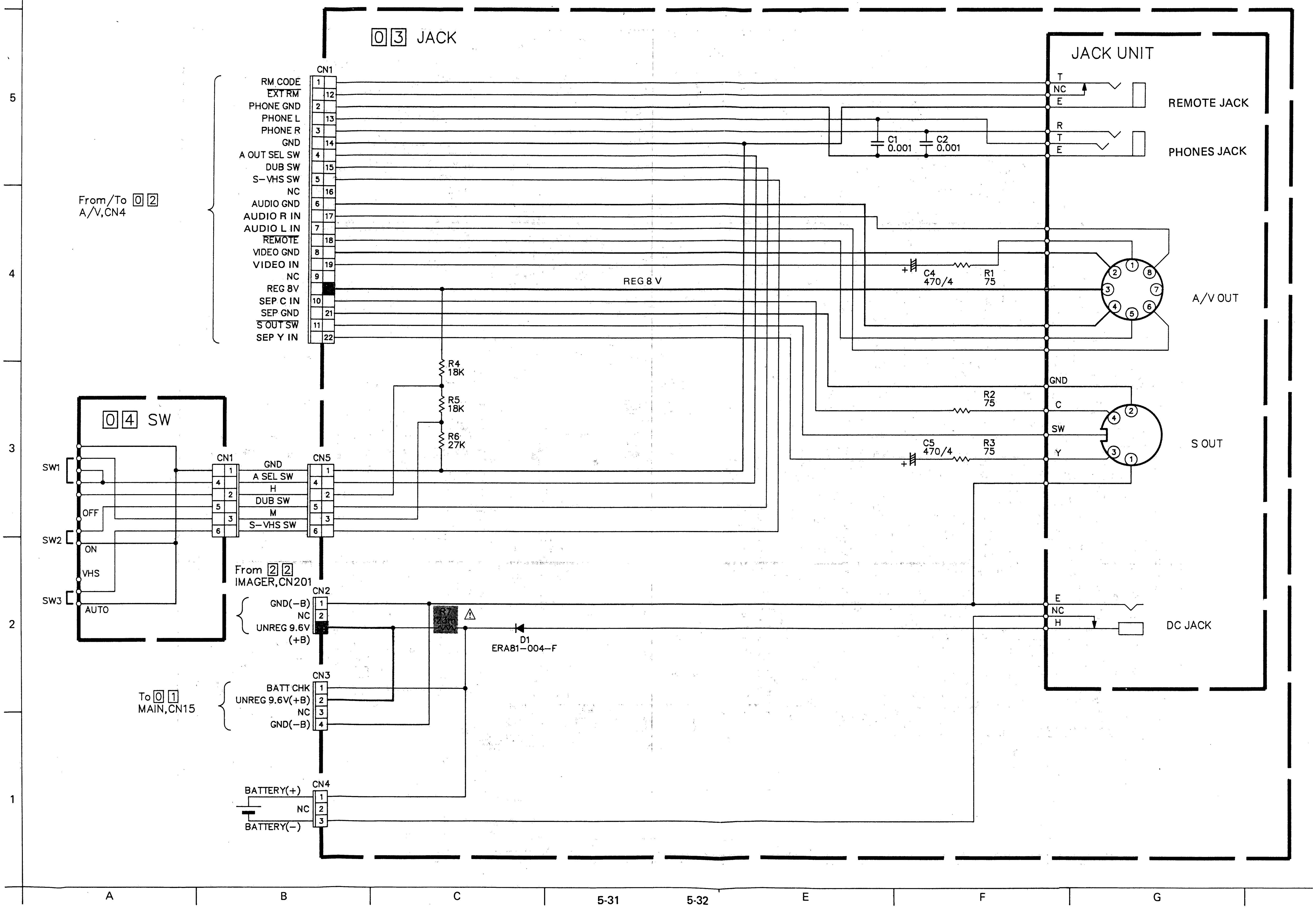
– Front –

. (A)

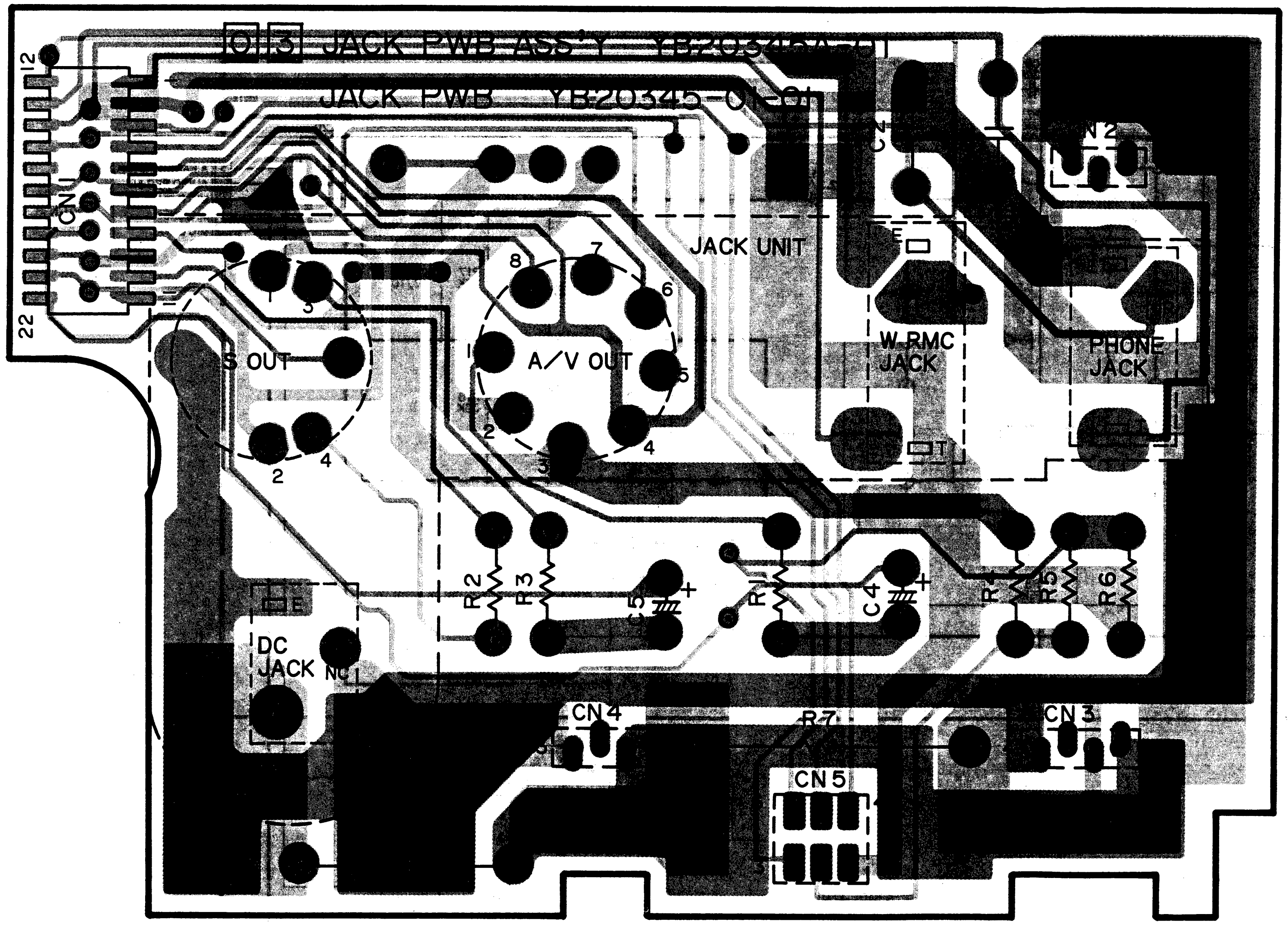

02 A/V PWB ASSY YB10063A-03-C2
A/V PWB YB10063-01-03
J504
J505
R16
R17
R15
C511
C510
R901
C128
L4
1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

5.12 JACK SCHEMATIC DIAGRAM

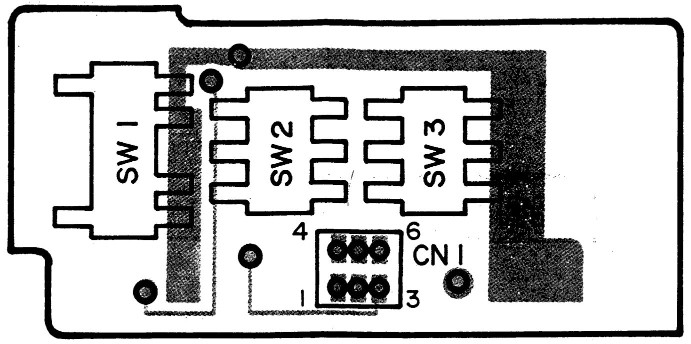
● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.


03 JACK
JACK UNIT
04 SW
From/To 02 A/V,CN4
CN1
RM CODE
EXT RM
PHONE GND
PHONE L
PHONE R
GND
A OUT SEL SW
DUB SW
S-VHS SW
NC
AUDIO GND
AUDIO R IN
AUDIO L IN
REMOTE
VIDEO GND
VIDEO IN
NC
REG 8V
SEP C IN
SEP GND
S OUT SW
SEP Y IN
REG 8 V
T
NC
E
REMOTE JACK
R
T
E
PHONES JACK
C1 0.001
C2 0.001
C4 470/4
R1 75
A/V OUT
R4 18K
R5 18K
R6 27K
GND
C
SW
Y
R2 75
C5 470/4
R3 75
S OUT
SW1
SW2
SW3
OFF
ON
VHS
AUTO
CN1
CN5
GND
A SEL SW
H
DUB SW
M
S-VHS SW
From 22 IMAGER,CN201
CN2
GND(−B)
NC
UNREG 9.6V (+B)
R7 2.3m
⚠
D1 ERA81−004−F
E
NC
H
DC JACK
CN3
To 01 MAIN,CN15
BATT CHK
UNREG 9.6V(+B)
NC
GND(−B)
CN4
BATTERY(+)
NC
BATTERY(−)
6
5
4
3
2
1
A
B
C
E
F
G

5.13 JACK & SWITCH CIRCUIT BOARD

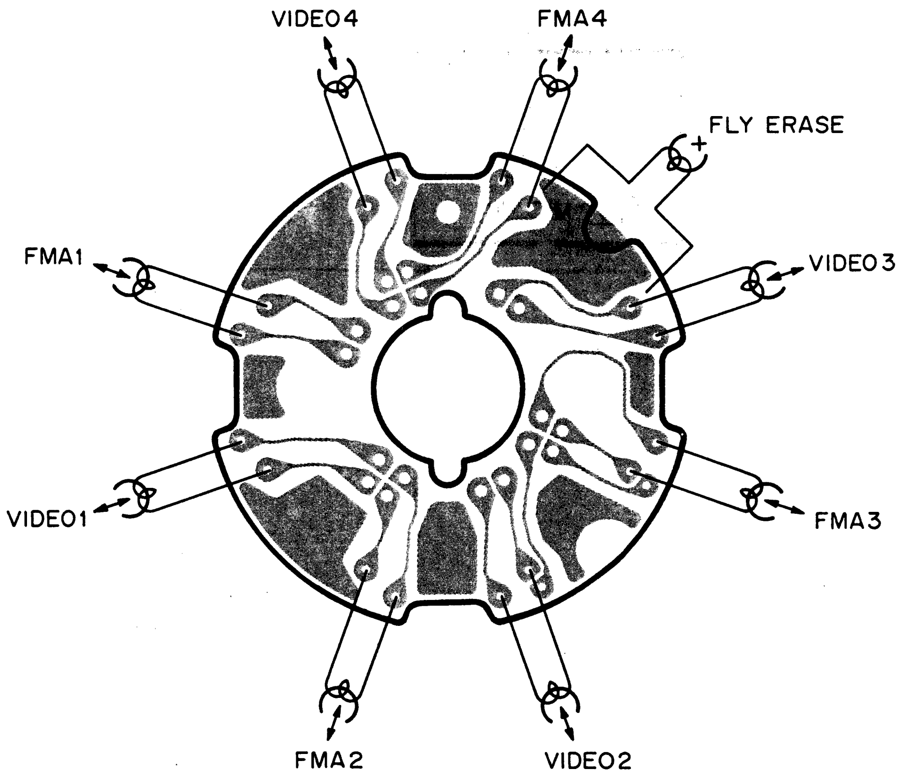

0 3 JACK PWB ASS'Y YB20345A-01
JACK PWB YB20345-01-01
12
22
CN1
C2
CN2
JACK UNIT
S OUT
A/V OUT
W.RMC JACK
PHONE JACK
E
T
1
2
3
4
5
6
7
8
R2
R3
C5
R1
C4
R4
R5
R6
DC JACK
NC1
CN4
R7
CN3
CN5

– SWITCH –


SW 1
SW 2
SW 3
CN 1
1
3
4
6

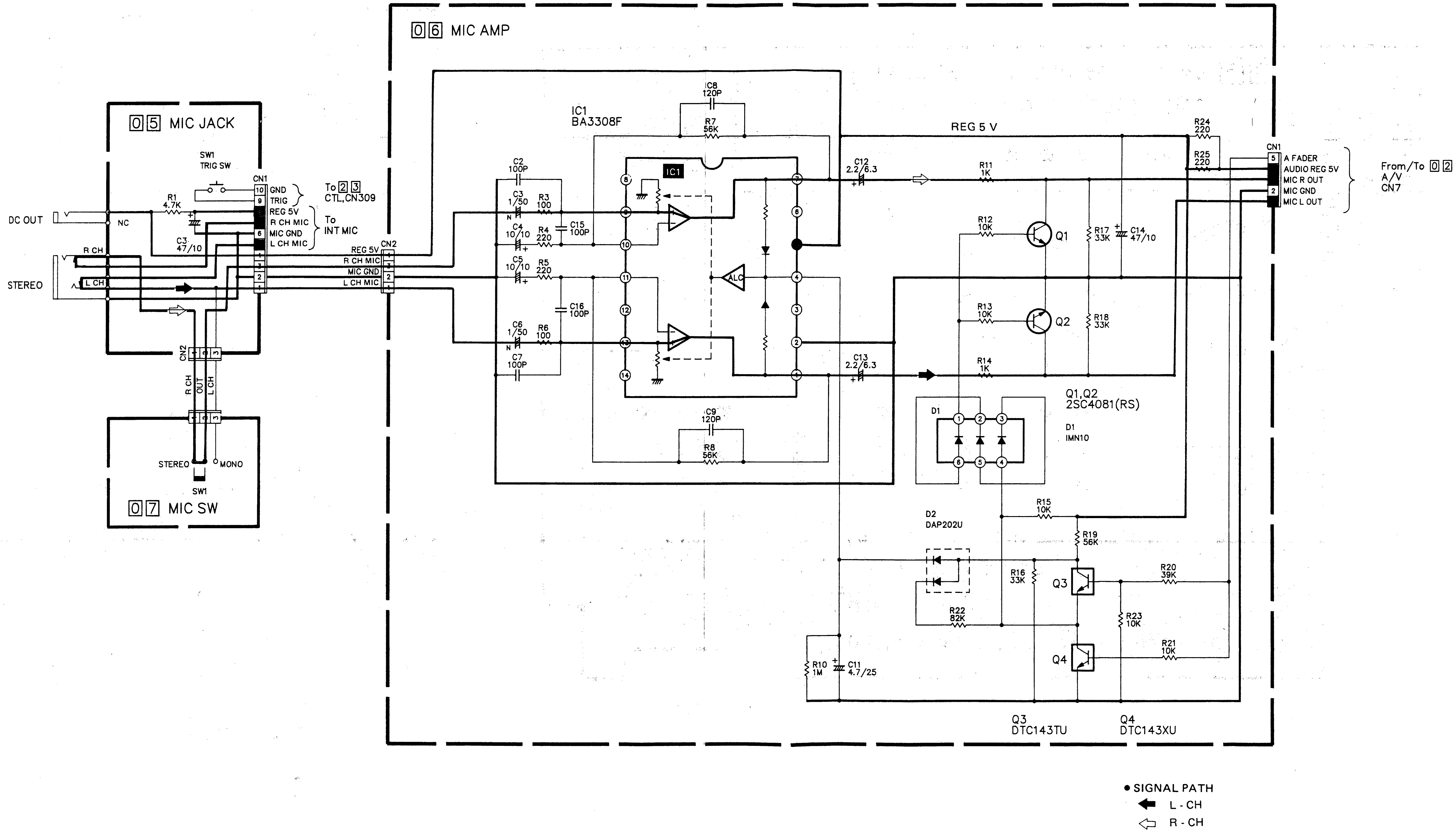
0 4 SW PWB ASS'Y YB20388A
SW PWB YB20388

– UPPER DRUM –


VIDEO4
FMA4
FLY ERASE
FMA1
VIDEO3
VIDEO1
FMA3
FMA2
VIDEO2

3 1 UPPER DRUM BOARD YDM3050

5.14 MIC AMP SCHEMATIC DIAGRAM



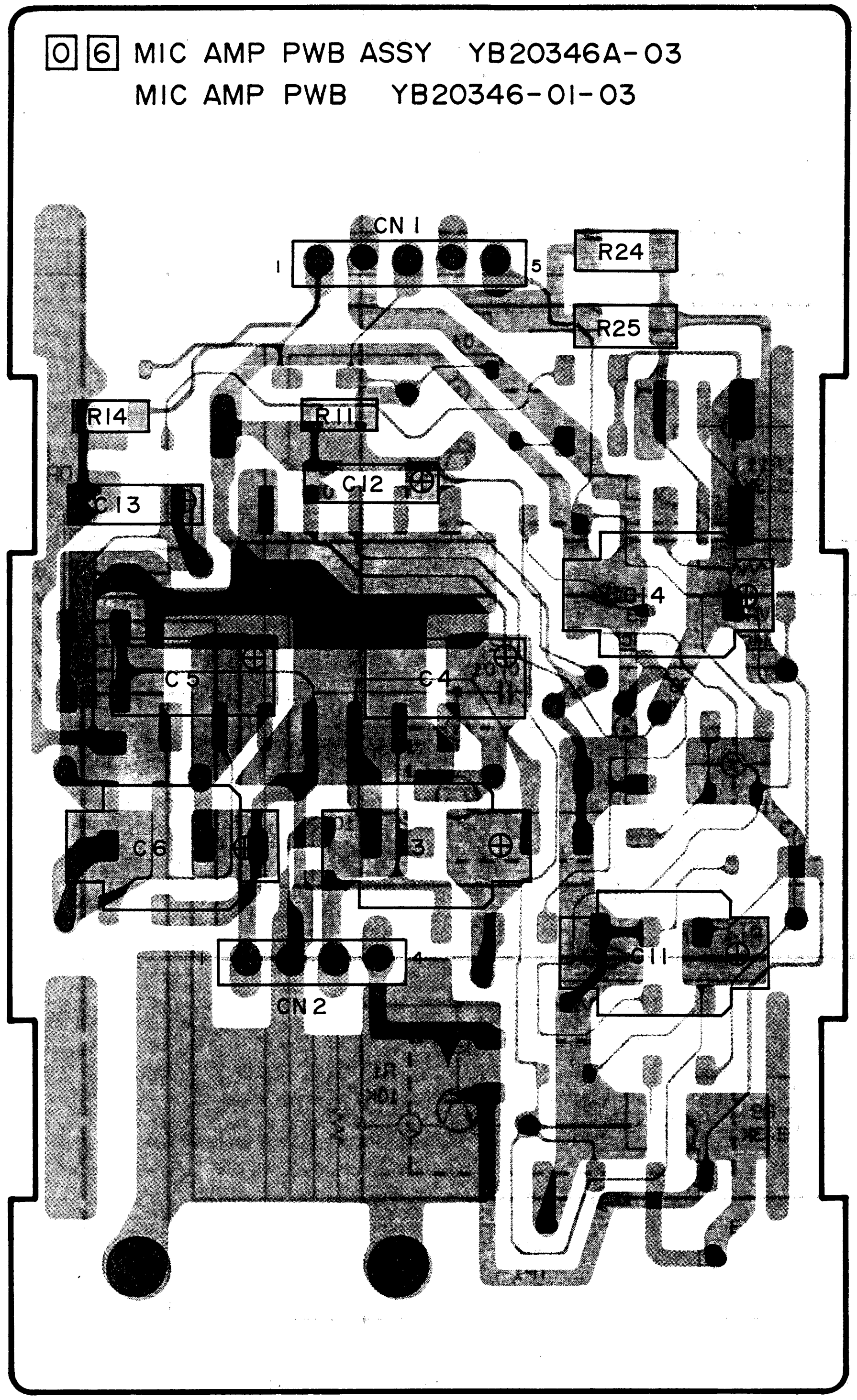
06 MIC AMP
05 MIC JACK
07 MIC SW
SW1
TRIG SW
CN1
10 GND
9 TRIG
REG 5V
R CH MIC
6 MIC GND
L CH MIC
To 23
CTL,CN309
To
INT MIC
DC OUT
NC
R1
4.7K
C3
47/10
R CH
L CH
STEREO
CN2
R CH
OUT
L CH
STEREO
MONO
SW1
REG 5V
R CH MIC
MIC GND
L CH MIC
CN2
IC1
BA3308F
IC8
120P
R7
56K
C2
100P
C3
1/50
R3
100
C4
10/10
R4
220
C15
100P
C5
10/10
R5
220
C16
100P
C6
1/50
R6
100
C7
100P
ALC
C9
120P
R8
56K
C12
2.2/6.3
C13
2.2/6.3
REG 5 V
R11
1K
R12
10K
Q1
R17
33K
C14
47/10
R13
10K
Q2
R18
33K
R14
1K
R24
220
R25
220
Q1,Q2
2SC4081(RS)
D1
D1
IMN10
R15
10K
D2
DAP202U
R19
56K
R16
33K
Q3
R20
39K
R22
82K
R23
10K
R21
10K
Q4
R10
1M
C11
4.7/25
Q3
DTC143TU
Q4
DTC143XU
CN1
5 A FADER
AUDIO REG 5V
MIC R OUT
2 MIC GND
MIC L OUT
From/To 02
A/V
CN7
● SIGNAL PATH
L - CH
R - CH

6
5
4
3
2
1

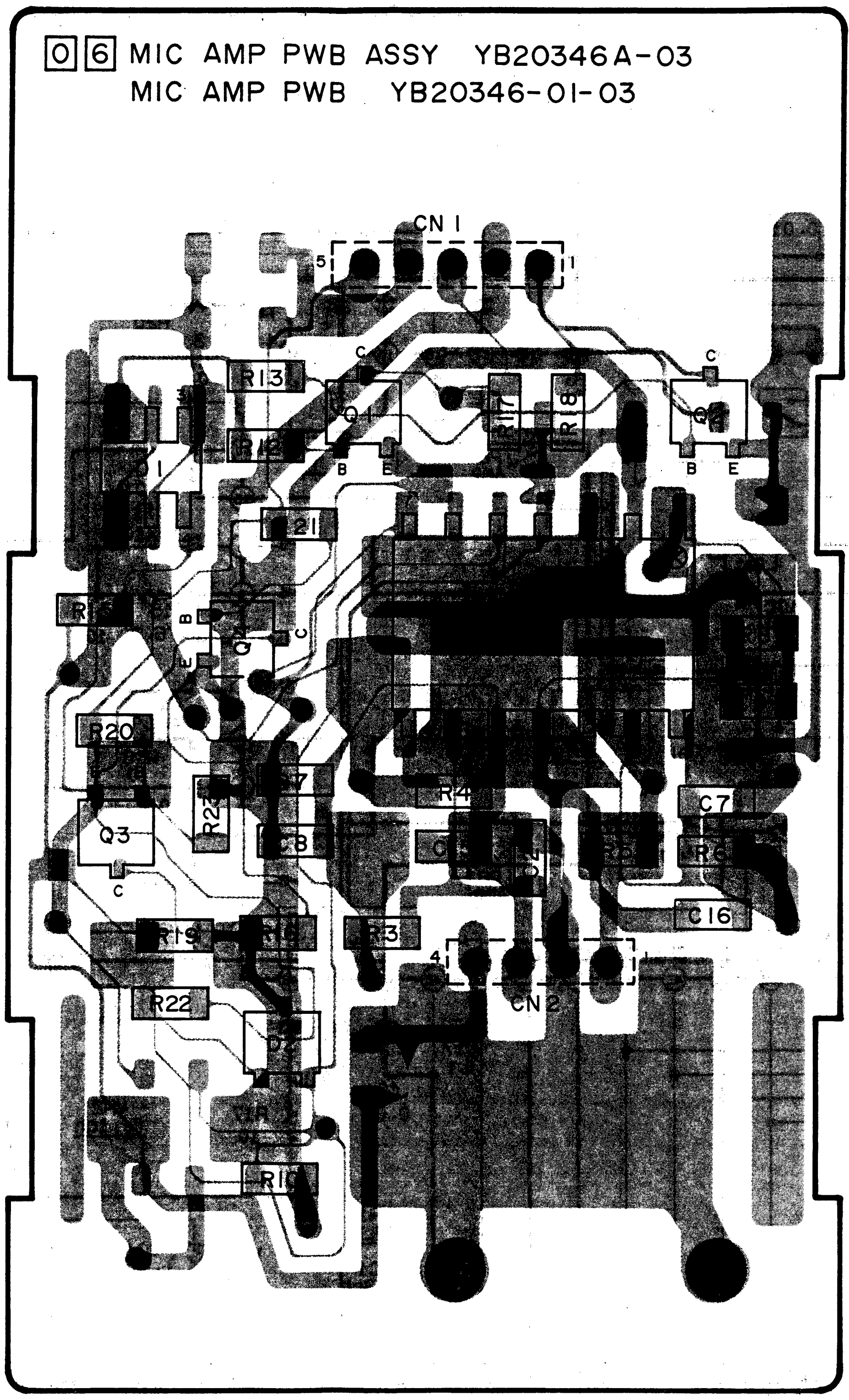
A B C E F G H

5.15 MIC AMP, MIC JACK & MIC SWITCH CIRCUIT BOARD

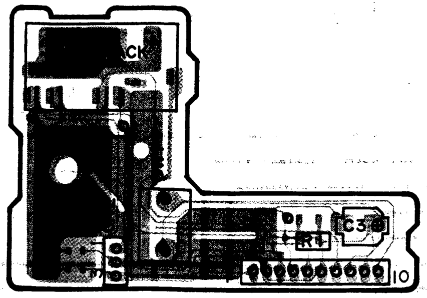
– Front –
(A)


06 MIC AMP PWB ASSY YB20346A-03
MIC AMP PWB YB20346-01-03
CN 1
1
5
R24
R25
R14
R11
C12
C13
C5
C4
C6
C3
C11
CN 2
4

– Rear –
(B)

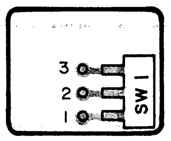

06 MIC AMP PWB ASSY YB20346A-03
MIC AMP PWB YB20346-01-03
CN 1
5
1
R13
R17
R18
C
B
E
R21
R20
Q3
C
R19
R22
R3
R4
C7
C16
C8
CN 2
4
R16

– MIC JACK –


JACK
C3
R1
10

05 MIC JACK PWB ASS'Y YB20393A1
MIC JACK PWB YB20393

– MIC SWITCH –



07 MIC SW PWB ASS'Y YB20393A2
MIC SW PWB YB20393

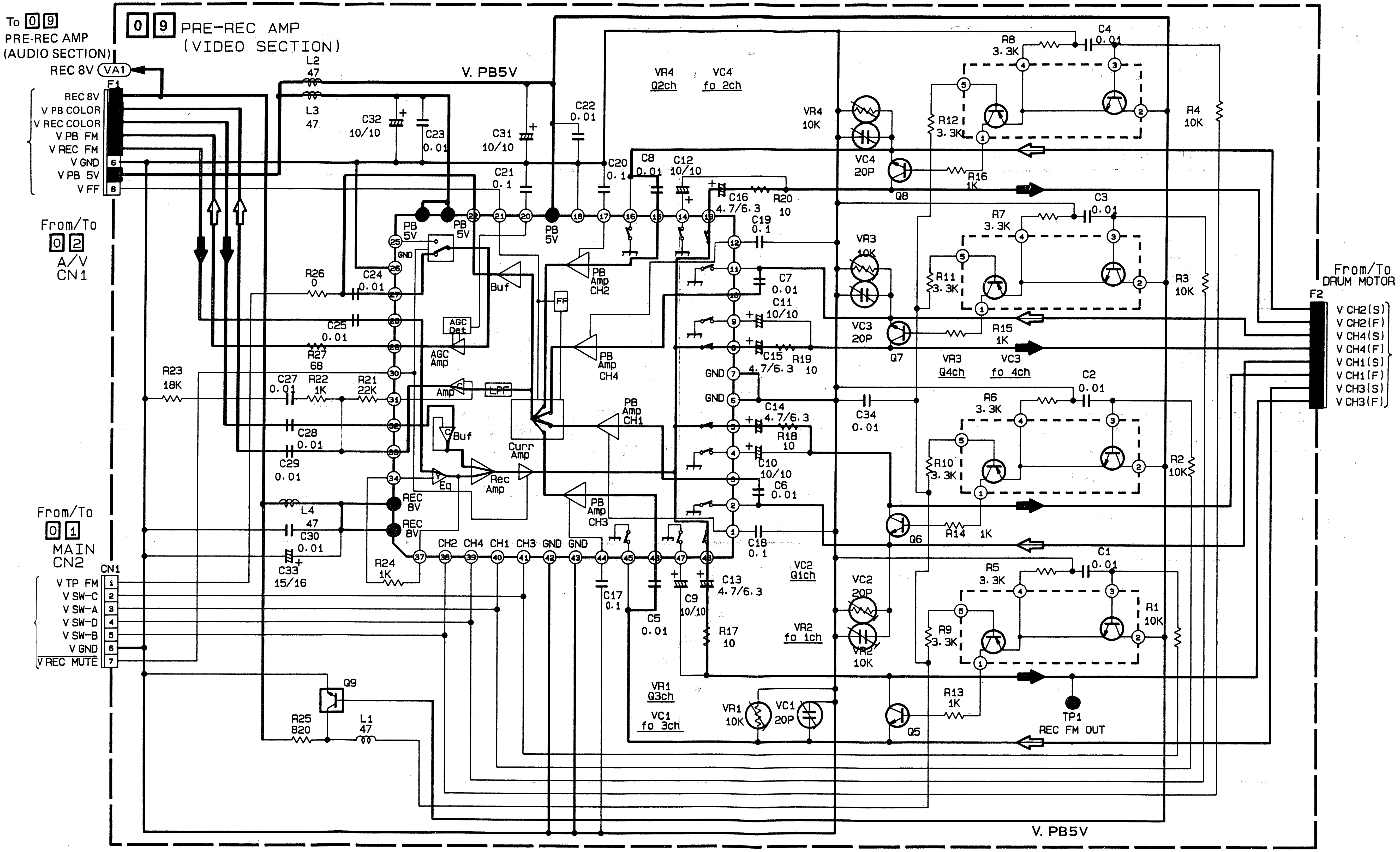
5.16 PRE-REC AMP SCHEMATIC DIAGRAM

Note:

This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

● SIGNAL PATH
🡄 REC
⇦ PB

– VIDEO SECTION –

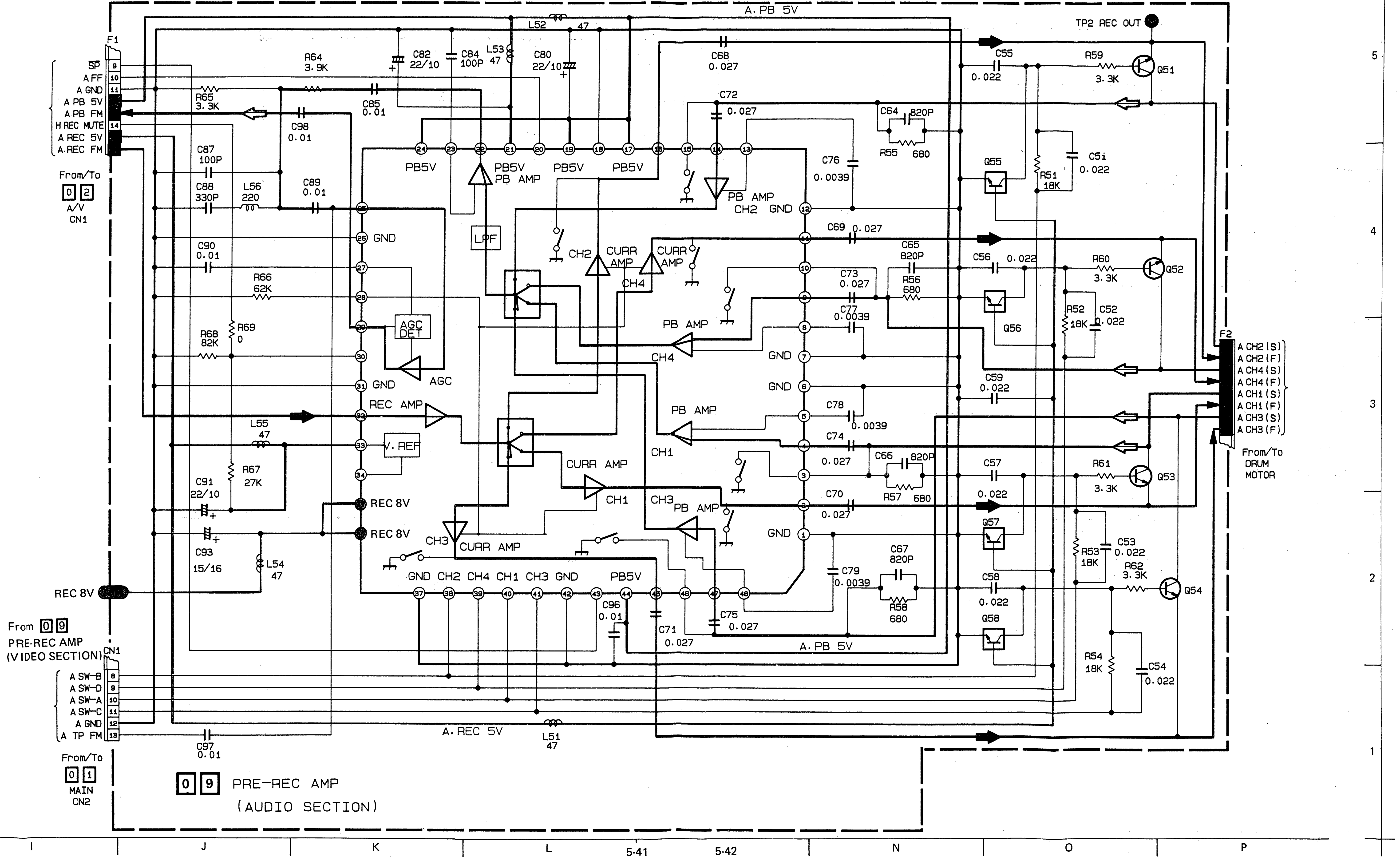


To 0 9
PRE-REC AMP
(AUDIO SECTION)
REC 8V
VA1
F1
REC 8V
V PB COLOR
V REC COLOR
V PB FM
V REC FM
V GND
V PB 5V
V FF
6
8
From/To
0 2
A/V
CN1
From/To
0 1
MAIN
CN2
CN1
V TP FM
V SW-C
V SW-A
V SW-D
V SW-B
V GND
V REC MUTE
1
2
3
4
5
6
7
0 9 PRE-REC AMP
(VIDEO SECTION)
L2 47
L3 47
V. PB5V
C32 10/10
C23 0.01
C31 10/10
C22 0.01
C21 0.1
C20 0.1
C8 0.01
C12 10/10
C16 4.7/6.3
R20 10
C19 0.1
C7 0.01
C11 10/10
C15 4.7/6.3
R19 10
C14 4.7/6.3
R18 10
C10 10/10
C6 0.01
C18 0.1
C13 4.7/6.3
C9 10/10
C5 0.01
C17 0.1
R17 10
PB 5V
GND
PB 5V
AGC Det
AGC Amp
Amp
LPF
Buf
Buf
Eq
Rec Amp
Curr Amp
FF
PB Amp CH2
PB Amp CH4
PB Amp CH1
PB Amp CH3
GND
GND
REC 8V
REC 8V
CH2 CH4 CH1 CH3 GND GND
R26 0
C24 0.01
C25 0.01
R27 68
R23 18K
C27 0.01
R22 1K
R21 22K
C28 0.01
C29 0.01
L4 47
C30 0.01
C33 15/16
R24 1K
Q9
R25 820
L1 47
VR4 Q2ch
VC4 fo 2ch
VR4 10K
VC4 20P
Q8
R16 1K
VR3 10K
VC3 20P
Q7
R15 1K
VR3 Q4ch
VC3 fo 4ch
C34 0.01
Q6
R14 1K
VC2 Q1ch
VC2 20P
VR2 fo 1ch
VR2 10K
VR1 Q3ch
VC1 fo 3ch
VR1 10K
VC1 20P
Q5
R13 1K
TP1
REC FM OUT
R8 3.3K
C4 0.01
R12 3.3K
R4 10K
R7 3.3K
C3 0.01
R11 3.3K
R3 10K
R6 3.3K
C2 0.01
R10 3.3K
R2 10K
R5 3.3K
C1 0.01
R9 3.3K
R1 10K
From/To
DRUM MOTOR
F2
V CH2(S)
V CH2(F)
V CH4(S)
V CH4(F)
V CH1(S)
V CH1(F)
V CH3(S)
V CH3(F)
V. PB5V

Note:
This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

● SIGNAL PATH
🡸 REC
⇦ PB

— AUDIO SECTION —

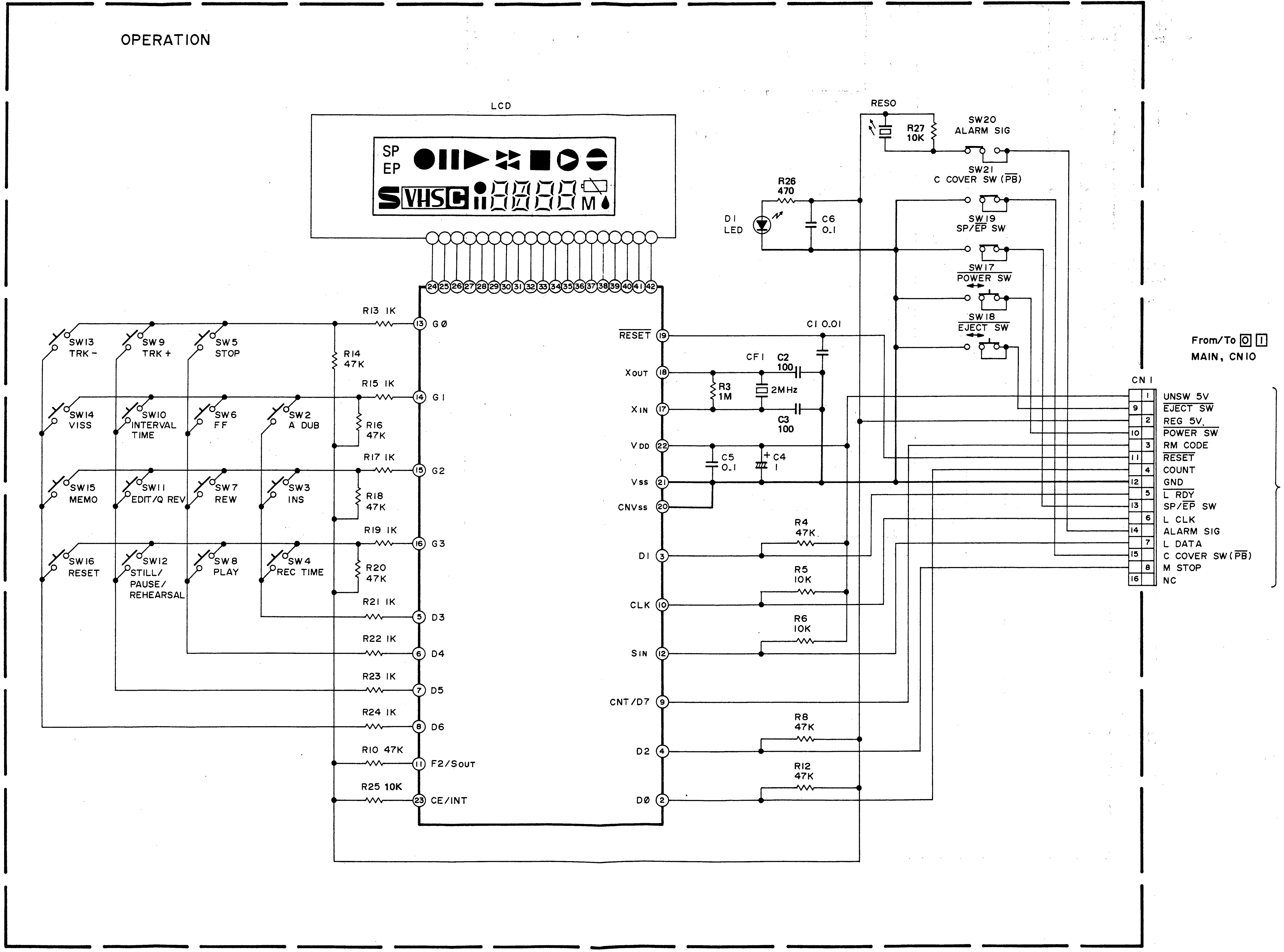


F1
SP 9
A FF 10
A GND 11
A PB 5V 12
A PB FM 13
H REC MUTE 14
A REC 5V 15
A REC FM 16
From/To 0 2 A/V CN1
REC 8V
From 0 9 PRE-REC AMP (VIDEO SECTION)
CN1
A SW-B 8
A SW-D 9
A SW-A 10
A SW-C 11
A GND 12
A TP FM 13
From/To 0 1 MAIN CN2
0 9 PRE-REC AMP (AUDIO SECTION)
A. PB 5V
A. REC 5V
L52 47
L53 47
L51 47
L54 47
L55 47
L56 220
R64 3.9K
R65 3.3K
R66 62K
R67 27K
R68 82K
R69 0
C82 22/10
C84 100P
C80 22/10
C85 0.01
C98 0.01
C87 100P
C88 330P
C89 0.01
C90 0.01
C91 22/10
C93 15/16
C96 0.01
C97 0.01
C71 0.027
C75 0.027
C68 0.027
C72 0.027
C76 0.0039
C64 820P
R55 680
C69 0.027
C65 820P
R56 680
C73 0.027
C77 0.0039
C78 0.0039
C74 0.027
C66 820P
R57 680
C70 0.027
C79 0.0039
C67 820P
R58 680
TP2 REC OUT
C55 0.022
R59 3.3K
Q51
Q55
R51 18K
C51 0.022
C56 0.022
R60 3.3K
Q52
Q56
R52 18K
C52 0.022
C59 0.022
C57 0.022
R61 3.3K
Q53
Q57
R53 18K
C53 0.022
R62 3.3K
Q54
C58 0.022
Q58
R54 18K
C54 0.022
PB5V
PB AMP
LPF
AGC DET
AGC
GND
REC AMP
V. REF
REC 8V
CH2
CURR AMP
CH4
CH1
CH3
PB AMP CH2
GND CH2 CH4 CH1 CH3 GND PB5V
F2
A CH2 (S)
A CH2 (F)
A CH4 (S)
A CH4 (F)
A CH1 (S)
A CH1 (F)
A CH3 (S)
A CH3 (F)
From/To DRUM MOTOR
6
5
4
3
2
1
I
J
K
L
N
O
P

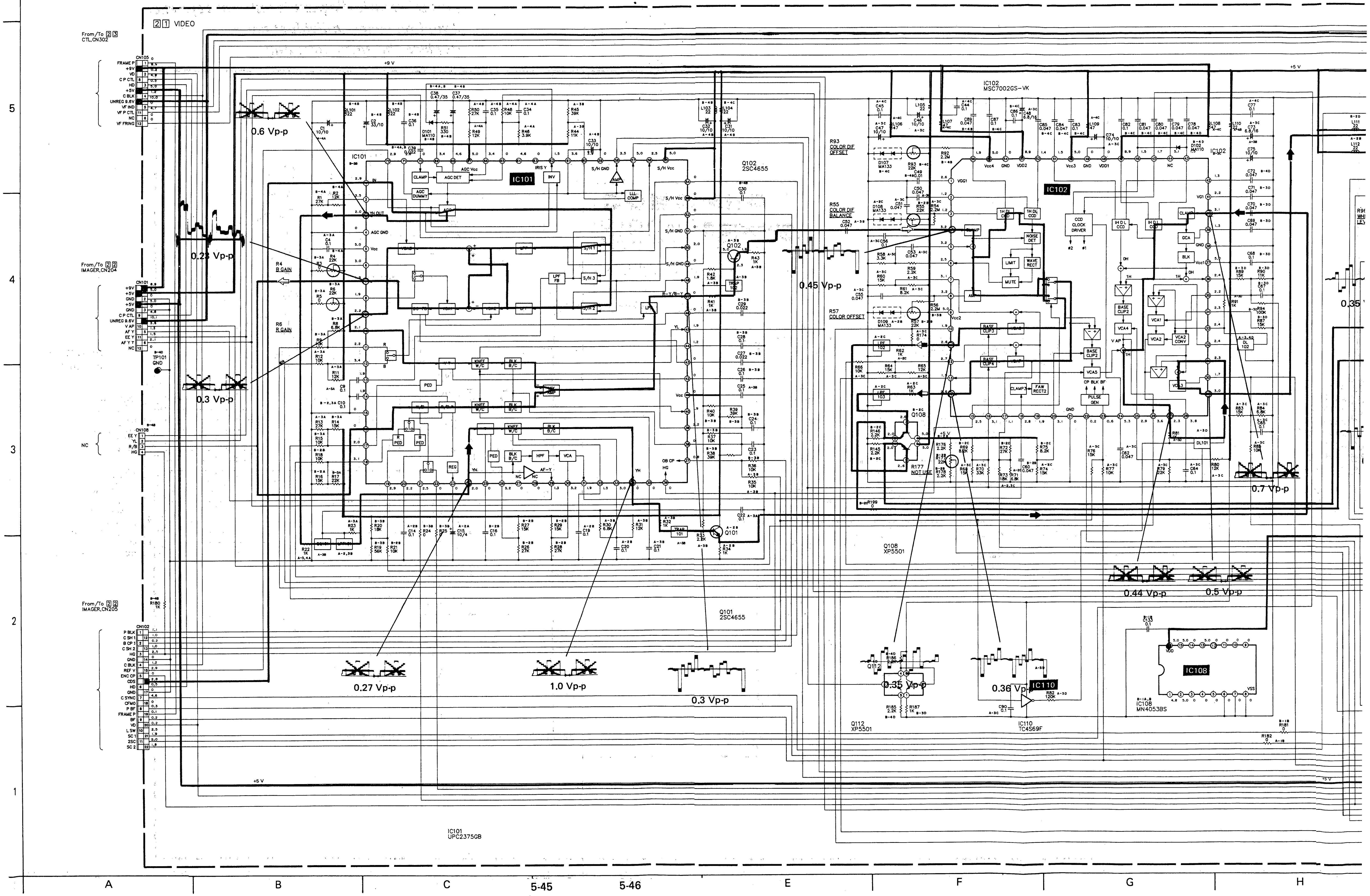
5.17 OPERATION SCHEMATIC DIAGRAM

Note:

This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


OPERATION
LCD
SP
EP
SVHSC
M
SW13 TRK−
SW9 TRK+
SW5 STOP
SW14 VISS
SW10 INTERVAL TIME
SW6 FF
SW2 A DUB
SW15 MEMO
SW11 EDIT/Q REV
SW7 REW
SW3 INS
SW16 RESET
SW12 STILL/ PAUSE/ REHEARSAL
SW8 PLAY
SW4 REC TIME
R13 1K
R14 47K
R15 1K
R16 47K
R17 1K
R18 47K
R19 1K
R20 47K
R21 1K
R22 1K
R23 1K
R24 1K
R10 47K
R25 10K
G0
G1
G2
G3
D3
D4
D5
D6
F2/Sout
CE/INT
RESET
Xout
Xin
Vdd
Vss
CNVss
D1
CLK
SIN
CNT/D7
D2
D0
C1 0.01
CF1
C2 100
R3 1M
2MHz
C3 100
C5 0.1
C4 1
R4 47K
R5 10K
R6 10K
R8 47K
R12 47K
R26 470
D1 LED
C6 0.1
RESO
R27 10K
SW20 ALARM SIG
SW21 C COVER SW (PB)
SW19 SP/EP SW
SW17 POWER SW
SW18 EJECT SW
From/To 0 1 MAIN, CN10
CN1
1 UNSW 5V
9 EJECT SW
2 REG 5V
10 POWER SW
3 RM CODE
11 RESET
4 COUNT
12 GND
5 L RDY
13 SP/EP SW
6 L CLK
14 ALARM SIG
7 L DATA
15 C COVER SW(PB)
8 M STOP
16 NC

5.18 VIDEO SCHEMATIC DIAGRAM



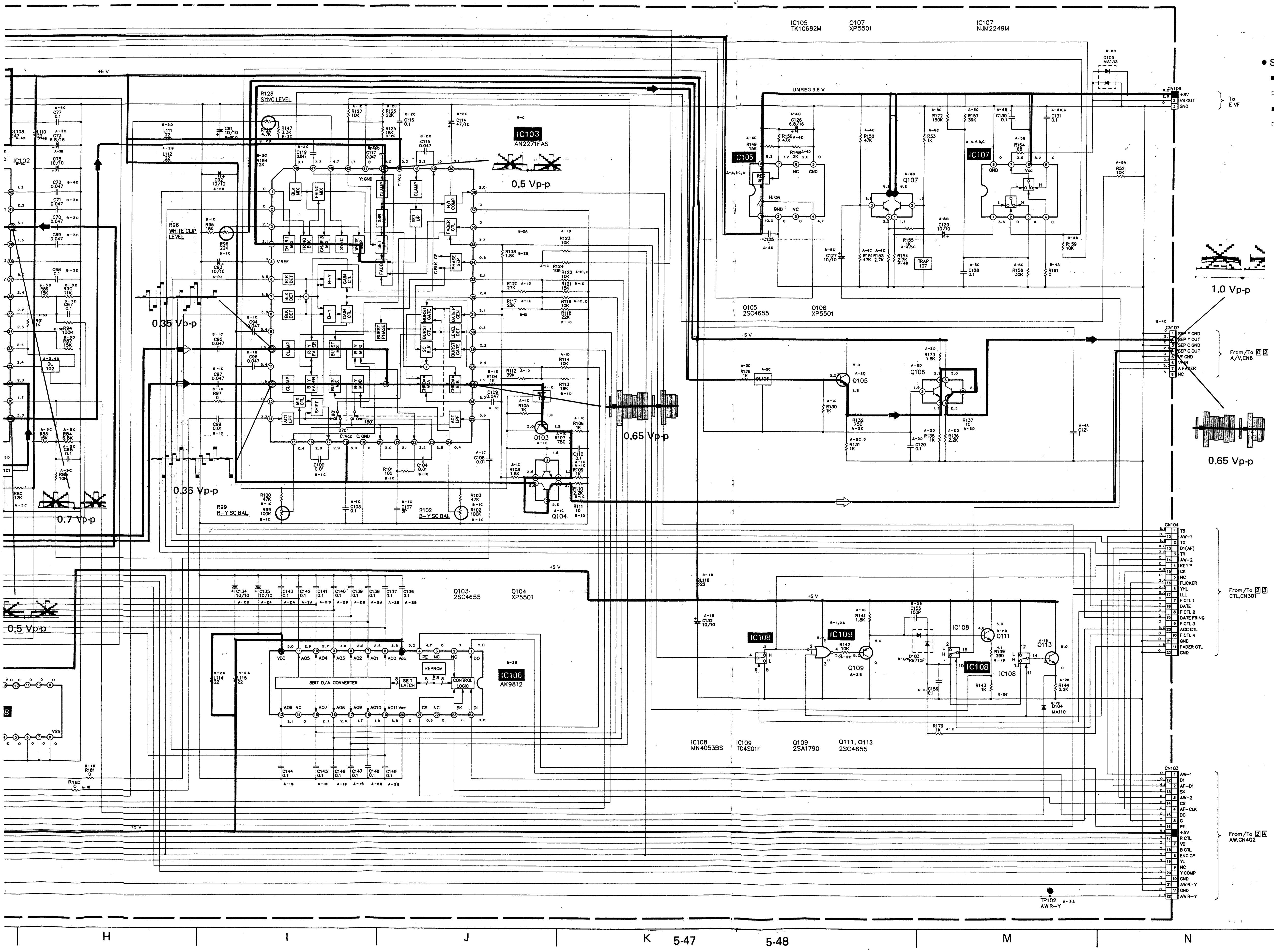
21 VIDEO
From/To 23 CTL,CN302
CN105
FRAME P
+9V
VD
C P CTL
HD
+5V
C BLK
UNREG 9.6V
VF IND
VF P CTL
NC
VF FRING
From/To 22 IMAGER,CN204
CN101
+9V
+5V
GND
+5V
GND
C P CTL
UNREG 9.6V
V AP
AF Y
EE Y
AF Y T
NC
TP101 GND
NC
CN108
EE Y
YL
R/B
HG
From/To 22 IMAGER,CN205
R180 1K
CN102
P BLK
C SH 1
B CP 1
C SH 2
HG
GND
C BLK
REF V
ENC CP
CDS
HD
GND
C SYNC
CFMO
P BF
FRAME P
BF
VD
L SW
SC 1
2SC
SC 2
+9 V
+5 V
0.6 Vp-p
0.23 Vp-p
0.3 Vp-p
0.27 Vp-p
1.0 Vp-p
0.3 Vp-p
0.45 Vp-p
0.35 Vp-p
0.36 Vp-p
0.44 Vp-p
0.5 Vp-p
0.7 Vp-p
IC101
IC101 UPC2375GB
IC102
IC102 MSC7002GS-VK
IC108
IC108 MN4053BS
IC110
IC110 TC4S69F
Q101 2SC4655
Q102 2SC4655
Q108 XP5501
Q112 XP5501
R4 B GAIN
R6 R GAIN
R93 COLOR DIF OFFSET
R55 COLOR DIF BALANCE
R57 COLOR OFFSET
R177 NOT USE
CLAMP
AGC DET
AGC DUMMY
AGC
INV
IRIS Y
S/H GND
S/H Vcc
AMP
LLL COMP
YH OUT
AGC GND
Vcc
LPF
LPF FB
S/H 1
S/H 2
S/H 3
KNEE W/C
BLK B/C
PED
REG
HPF
VCA
AF-Y
YH
YL
R-Y/B-Y
OB CP
TRAP
VGG1
VCC4
GND
VDD2
VCC3
VDD1
1H DL CCD
CCD CLOCK DRIVER
NOISE DET
LIMIT
WAVE RECT
MUTE
BASE CLIP
BASE CLIP2
BASE CLIP3
BASE CLIP4
VCA1
VCA2
VCA2 CONV
VCA3
VCA4
VCA5
GCA
CP BLK BF
PULSE GEN
FAW RECT2
DL101
DL102
D101 MA110
D102 MA110
D107 MA133
D108 MA133
D109 MA133
V AP
A
B
C
E
F
G
H
1
2
3
4
5
6

• Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.

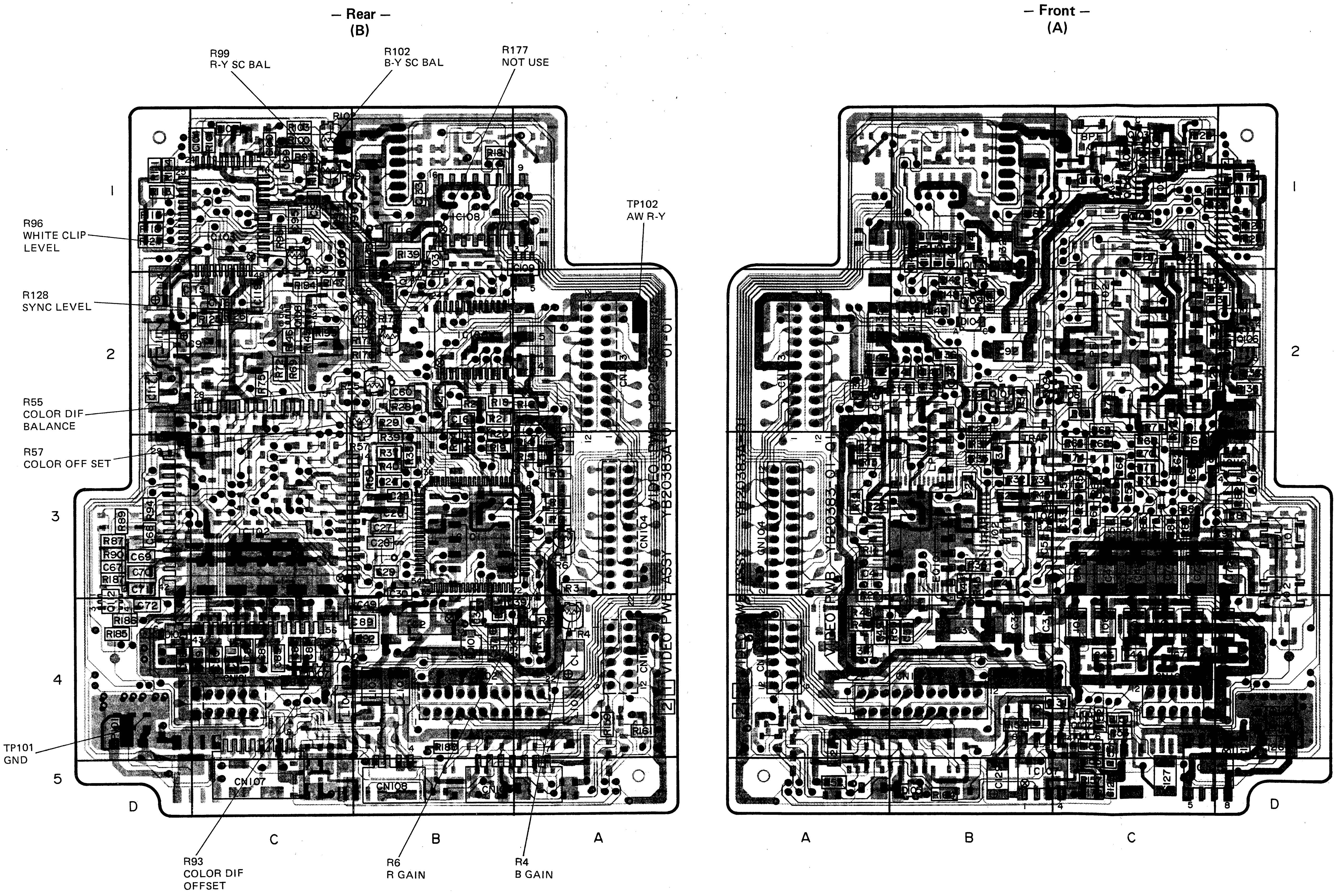
• Waveform : Measured as the gray scale or color bar pattern which light up brightly is shot in the rehersal mode.

• Address of chip parts
A-1D
Address
A : Discrete parts side
B : Chip parts side

• SIGNAL PATH
- ➡ Y SIGNAL
- ⇨ COLOR (R-Y/B-Y) SIGNAL
- ➡ R, R-Y SIGNAL
- ⇨ B, B-Y SIGNAL


IC105 TK10682M
Q107 XP5501
IC107 NJM2249M
IC103 AN2271FAS
IC102
IC105
IC107
Q107
D105 MA133
UNREG 9.6 V
+5 V
R128 SYNC LEVEL
R96 WHITE CLIP LEVEL
R99 R-Y SC BAL
R102 B-Y SC BAL
0.5 Vp-p
0.35 Vp-p
0.36 Vp-p
0.7 Vp-p
0.65 Vp-p
1.0 Vp-p
Q105 2SC4655
Q106 XP5501
Q103 2SC4655
Q104 XP5501
Q103
Q104
Q105
Q106
CN106
+8V
VS OUT
GND
To E VF
CN107
SEP Y GND
SEP Y OUT
SEP C GND
SEP C OUT
VF GND
V IN
A FADER
NC
From/To ⑨② A/V,CN6
CN104
From/To ②③ CTL,CN301
CN103
From/To ②④ AW,CN402
IC106 AK9812
8BIT D/A CONVERTER
EEPROM
8BIT LATCH
CONTROL LOGIC
IC108
IC109
Q109
Q111
Q113
D103
D104 MA110
IC108 MN4053BS
IC109 TC4S01F
Q109 2SA1790
Q111, Q113 2SC4655
TP102 AWR-Y
H
I
J
K
M
N
O

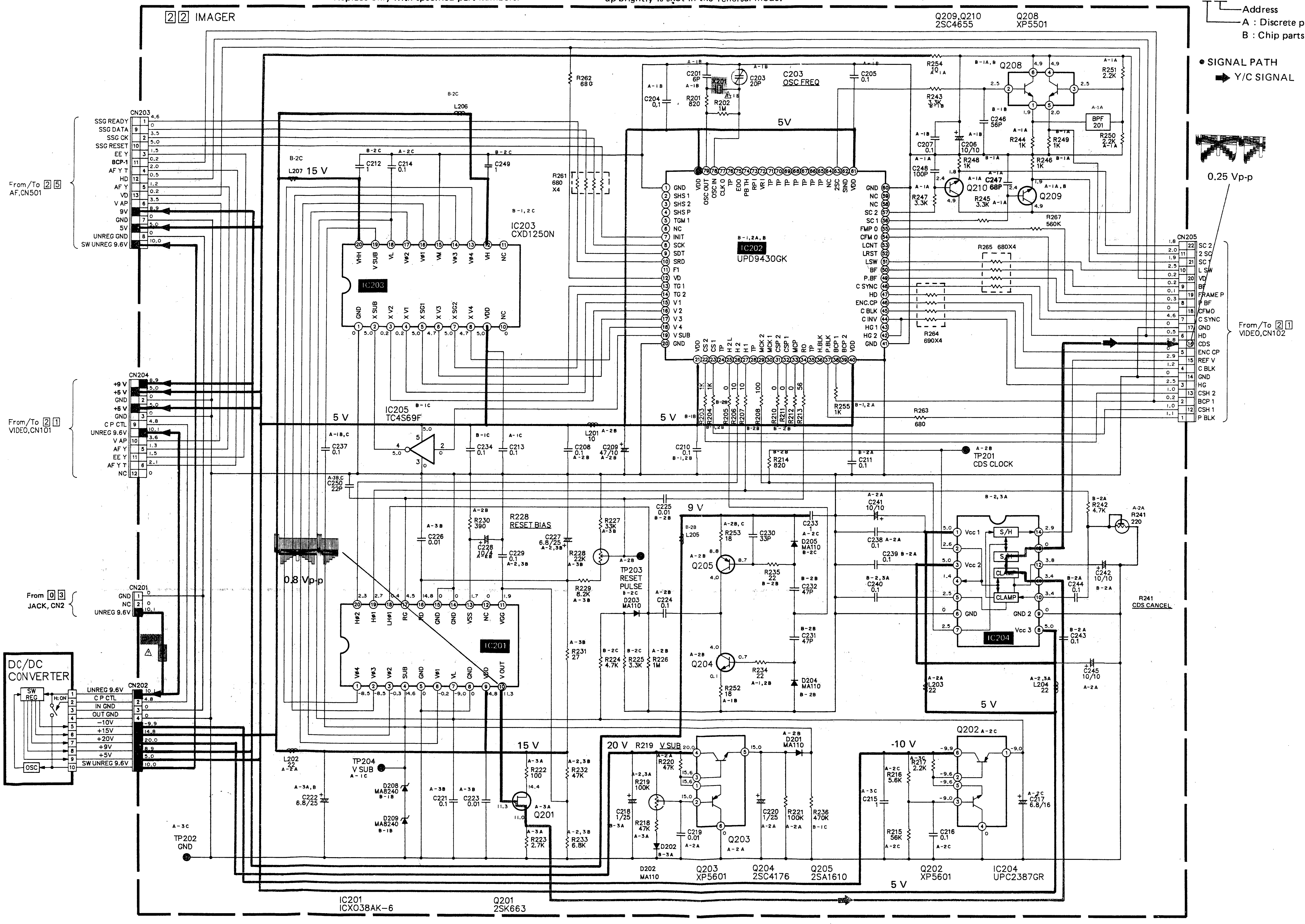
5.19 VIDEO CIRCUIT BOARD


– Rear –
(B)
– Front –
(A)
R99
R-Y SC BAL
R102
B-Y SC BAL
R177
NOT USE
TP102
AW R-Y
R96
WHITE CLIP
LEVEL
R128
SYNC LEVEL
R55
COLOR DIF
BALANCE
R57
COLOR OFF SET
TP101
GND
R93
COLOR DIF
OFFSET
R6
R GAIN
R4
B GAIN
1
2
3
4
5
D
C
B
A
A
B
C
D
1
2
3
4
5

6
5
4
3
2
1
A
B
C
E
F
G
H

5.20 IMAGER SCHEMATIC DIAGRAM

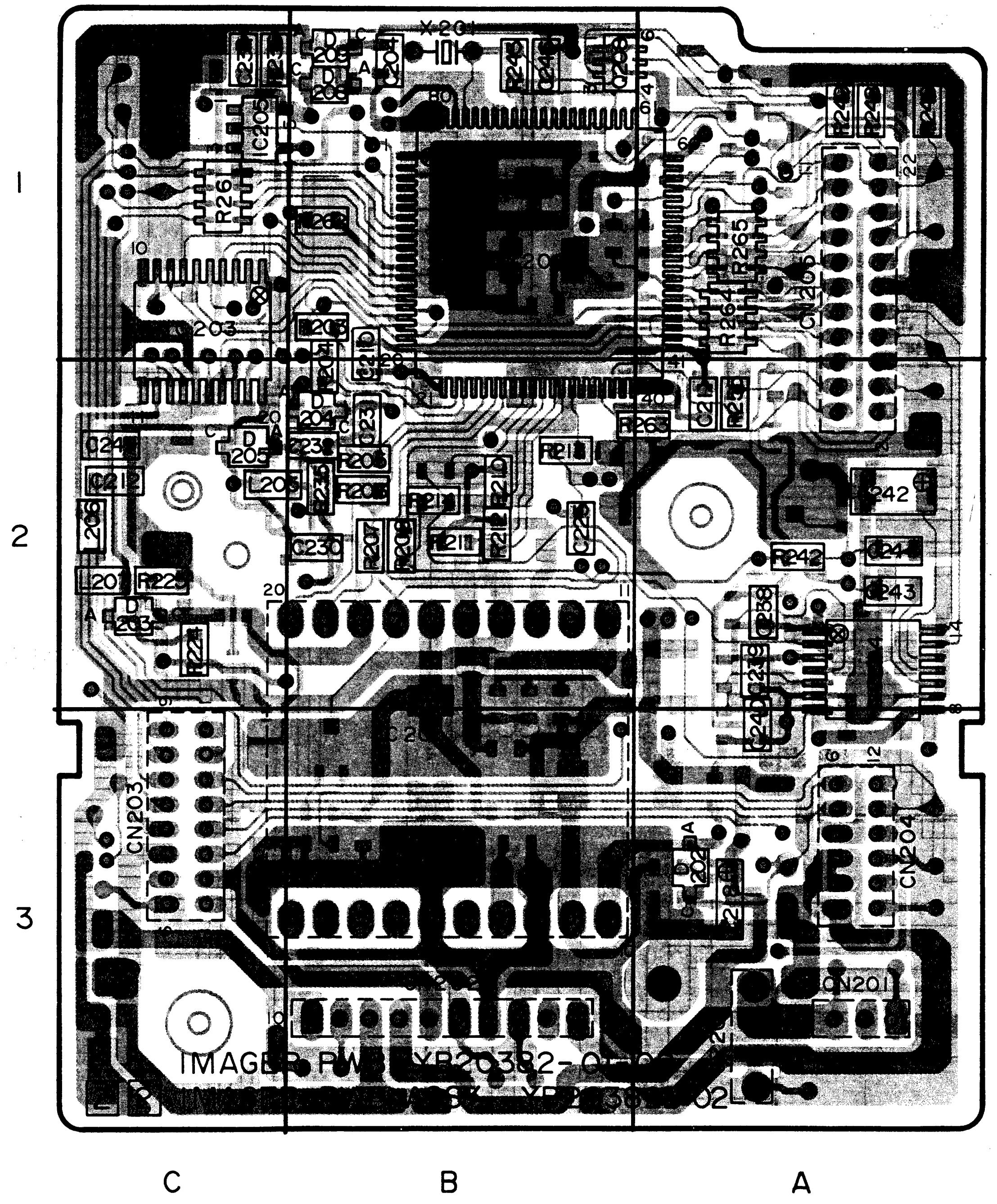
- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
- Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.
- Waveform : Measured as the gray scale or color bar pattern which light up brightly is shot in the rehersal mode.
- Address of chip parts
  A-1D — Address
  A : Discrete parts side
  B : Chip parts side
- SIGNAL PATH
  ➡ Y/C SIGNAL



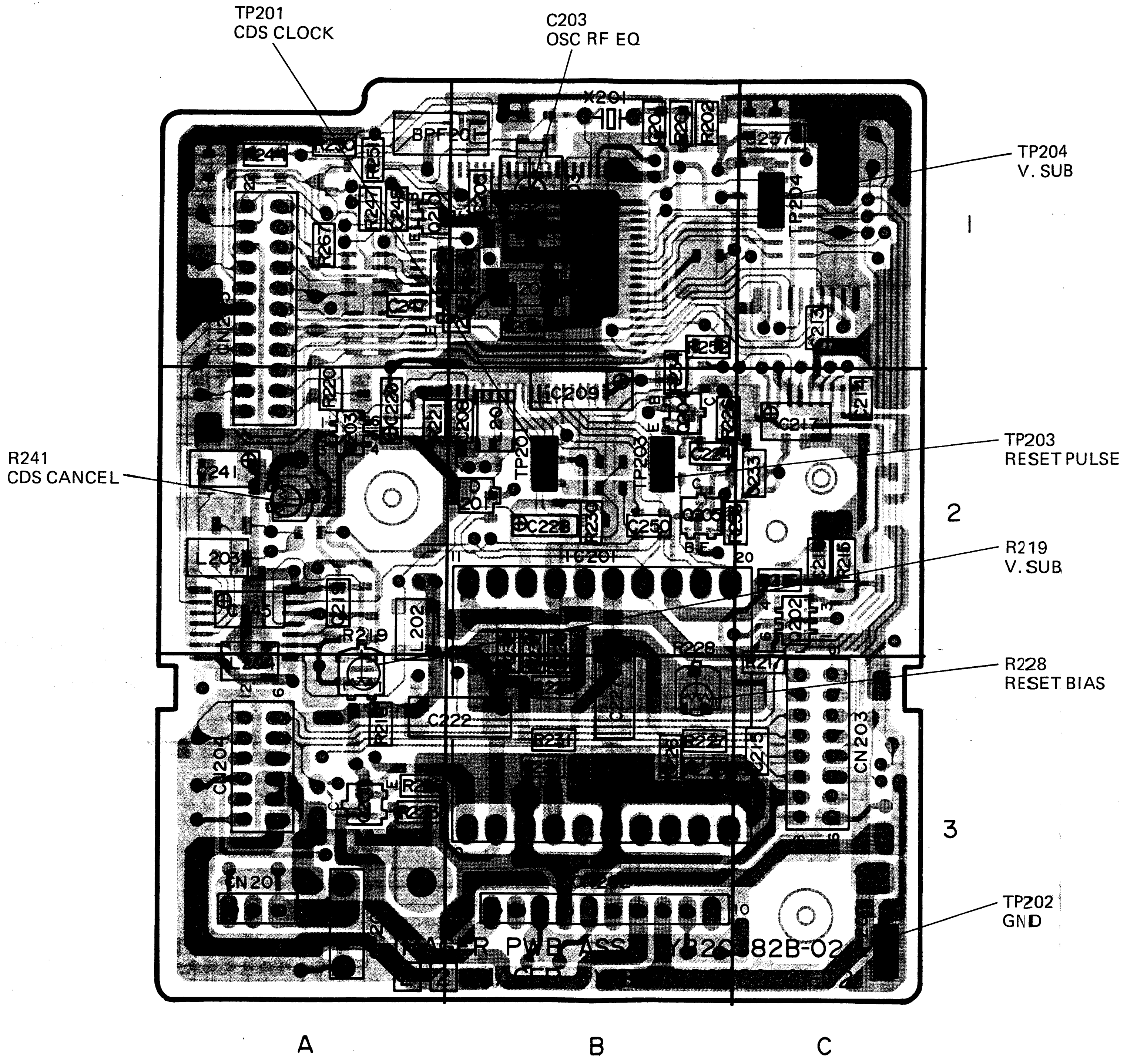
22 IMAGER
From/To 25 AF,CN501
CN203
SSG READY
SSG DATA
SSG CK
SSG RESET
EE Y
BCP-1
AF Y T
HD
AF Y
VD
V AP
9V
GND
5V
UNREG GND
SW UNREG 9.6V
From/To 21 VIDEO,CN101
CN204
+9 V
+5 V
GND
+5 V
GND
C P CTL
UNREG 9.6V
V AP
AF Y
EE Y
AF Y T
NC
From 03 JACK, CN2
CN201
GND
NC
UNREG 9.6V
DC/DC CONVERTER
SW REG
H: ON
OSC
CN202
UNREG 9.6V
C P CTL
IN GND
OUT GND
-10V
+15V
+20V
+9V
+5V
SW UNREG 9.6V
IC203 CXD1250N
VHH
V SUB
VL
Vφ2
Vφ1
VM
Vφ3
Vφ4
VH
NC
GND
X SUB
X V2
X V1
X SG1
X V3
X SG2
X V4
VDD
L207 15 V
L206
C212 1
C214 0.1
C249 1
5 V
IC205 TC4S69F
C237 0.1
C234 0.1
C213 0.1
C250 22P
IC201 ICX038AK-6
Hφ2
Hφ1
LHφ1
RG
RD
GND
VSS
NC
VGG
Vφ4
Vφ3
Vφ2
SUB
Vφ1
VL
GND
VDD
V OUT
0.8 Vp-p
C226 0.01
R230 390
R228 RESET BIAS
C228 10/4
C227 6.8/25
C229 0.1
R228 22K
R227 33K
TP203 RESET PULSE
R229 8.2K
D203 MA110
C224 0.1
R231 27
R224 4.7K
R225 3.3K
R226 1M
L202 22
TP204 V SUB
C222 6.8/25
D208 MA8240
D209 MA8240
C221 0.1
C223 0.01
15 V
R222 100
R232 47K
Q201
R223 2.7K
R233 6.8K
TP202 GND
Q201 2SK663
R262 680
R261 680 X4
L201 10
C208 0.1
C209 47/10
C201 6P
C204 0.1
R201 820
X201
R202 1M
C203 20P
C203 OSC FREQ
C205 0.1
5V
IC202 UPD9430GK
GND
SHS 1
SHS 2
SHS P
TGM 1
NC
INIT
SCK
SDT
SRD
F1
VD
TG 1
TG 2
V 1
V 2
V 3
V 4
V SUB
VDD
OSC OUT
OSC IN
CLK 0
TP
EOO
PB TH
RP I
VRI
SND
2SC
SC 2
SC 1
FMP 0
CFM 0
LCNT
LRST
LSW
BF
P.BF
C SYNC
ENC.CP
C BLK
C INV
HG 1
HG 2
CS 2
CS 1
H 2L
H 2
H 1
MCK 2
MCK 1
CSP 2
CSP 1
MCP
RO
H.BLK
P.BLK
BCP 1
BCP 2
R204 1K
R203 1K
R205 10
R206 10
R207 10
R208 100
R210 0
R211 0
R212 0
R213 56
R255 1K
C210 0.1
R214 820
C211 0.1
R263 680
TP201 CDS CLOCK
Q209,Q210 2SC4655
Q208 XP5501
R254 10
R243 3.3K
C207 0.1
C206 10/10
C246 56P
R244 1K
R249 1K
R251 2.2K
BPF 201
R250 2.2K
R248 1K
R246 1K
C248 100P
Q210
C247 68P
Q209
R247 3.3K
R245 3.3K
R267 560K
R265 680X4
R264 690X4
0.25 Vp-p
CN205
SC 2
2 SC
SC 1
L SW
VD
BF
FRAME P
P BF
CFMO
C SYNC
GND
HD
CDS
ENC CP
REF V
C BLK
GND
HG
CSH 2
BCP 1
CSH 1
P BLK
From/To 21 VIDEO,CN102
9 V
L205
R253 18
C230 33P
Q205
R235 22
C233 1
D205 MA110
C232 47P
C231 47P
Q204
R234 22
R252 18
D204 MA110
C225 0.01
C241 10/10
C238 0.1
C239 0.1
C240 0.1
IC204
Vcc 1
Vcc 2
S/H
CLAMP
GND
GND 2
Vcc 3
R242 4.7K
R241 220
C242 10/10
C244 0.1
R241 CDS CANCEL
C243 0.1
L203 22
L204 22
C245 10/10
5 V
20 V
R219 V SUB
R220 47K
R219 100K
C218 1/25
R218 47K
D202
C219 0.01
Q203
D201 MA110
C220 1/25
R221 100K
R236 470K
-10 V
Q202
R217 2.2K
R216 5.6K
C215 1
R215 56K
C216 0.1
C217 6.8/16
D202 MA110
Q203 XP5601
Q204 2SC4176
Q205 2SA1610
Q202 XP5601
IC204 UPC2387GR

5.21 IMAGER CIRCUIT BOARD

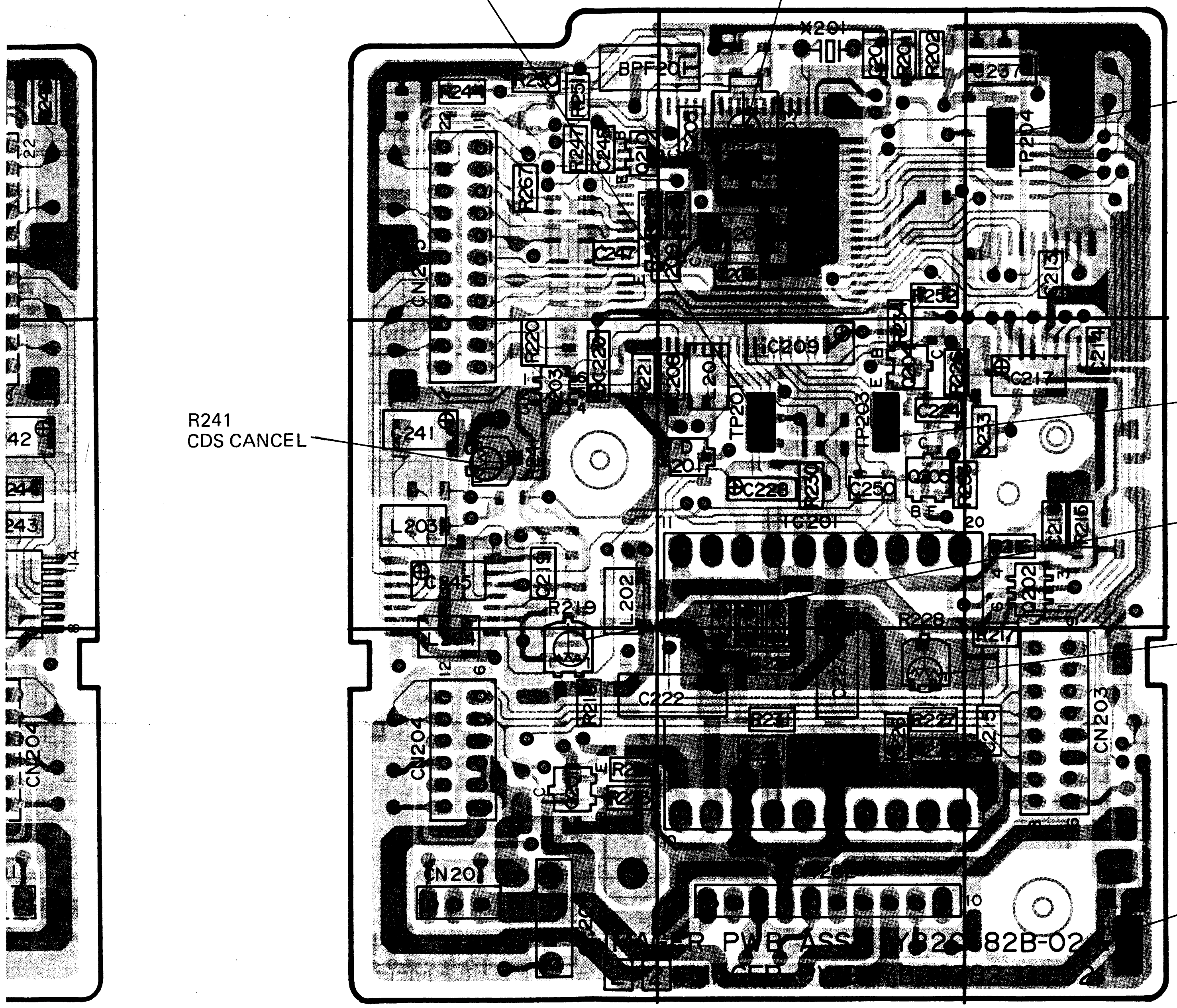
— Rear —
(B)


I
2
3
C
B
A
X201
IC201
IC203
CN203
CN204
CN201
IMAGER PWB YB20382-02

— Front —
(A)


TP201
CDS CLOCK
C203
OSC RF EQ
TP204
V. SUB
TP203
RESET PULSE
R241
CDS CANCEL
R219
V. SUB
R228
RESET BIAS
TP202
GND
I
2
3
A
B
C
X201
BPF201
IC201
IC209
CN202
CN203
CN204
CN201
IMAGER PWB ASSY YB20382B-02

– Front –
(A)


X201
BPF201
R244
CN205
C241
L203
C245
R219
L202
IC201
IC209
C228
C250
C217
C224
R228
R227
C222
CN204
CN203
CN201
1
2
3
A
B
C

TP201
CDS CLOCK

C203
OSC RF EQ

TP204
V. SUB

TP203
RESET PULSE

R241
CDS CANCEL

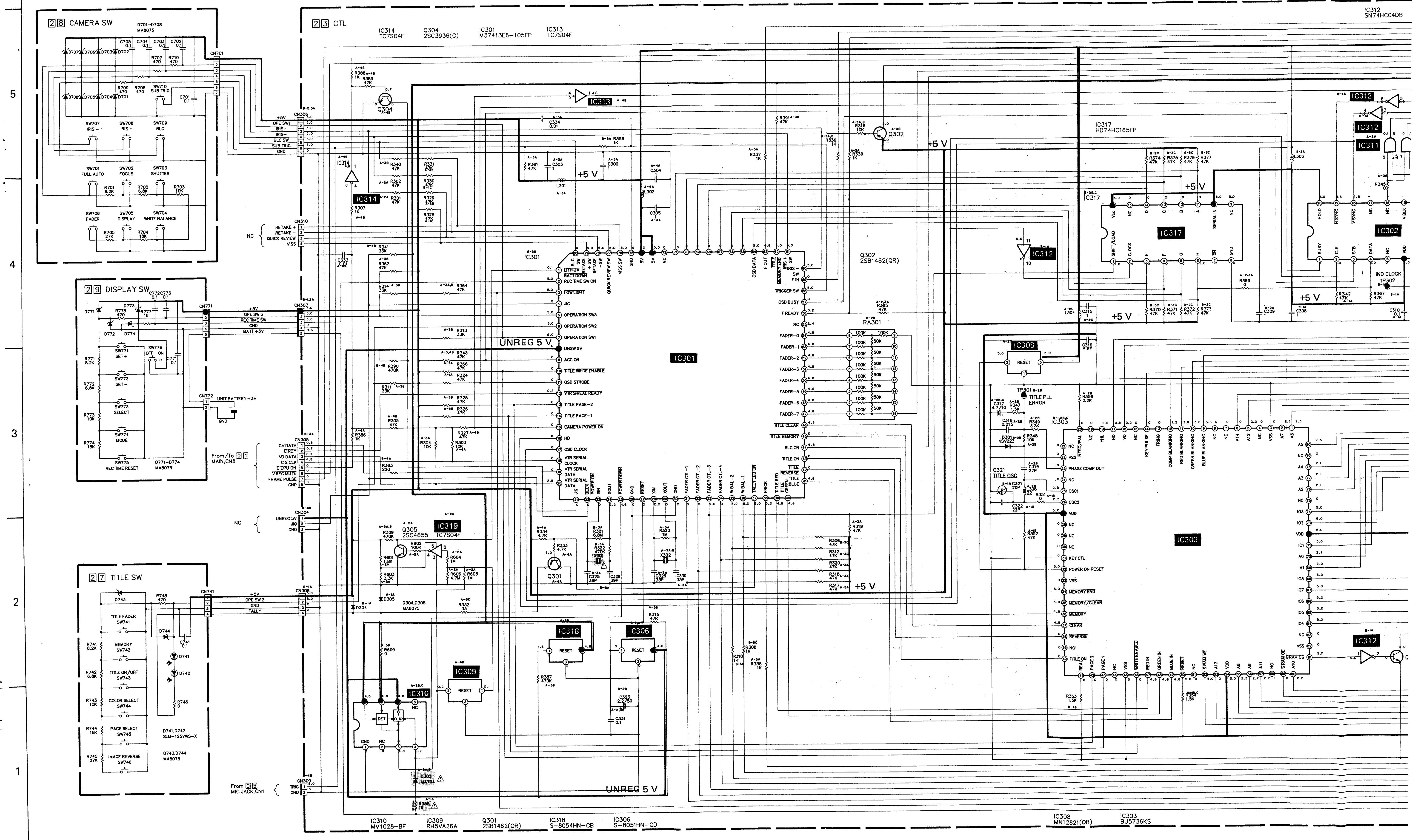
R219
V. SUB

R228
RESET BIAS

TP202
GND

5.22 CTL, TITLE SW, CAMERA SW & DISPLAY SW SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
- Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.



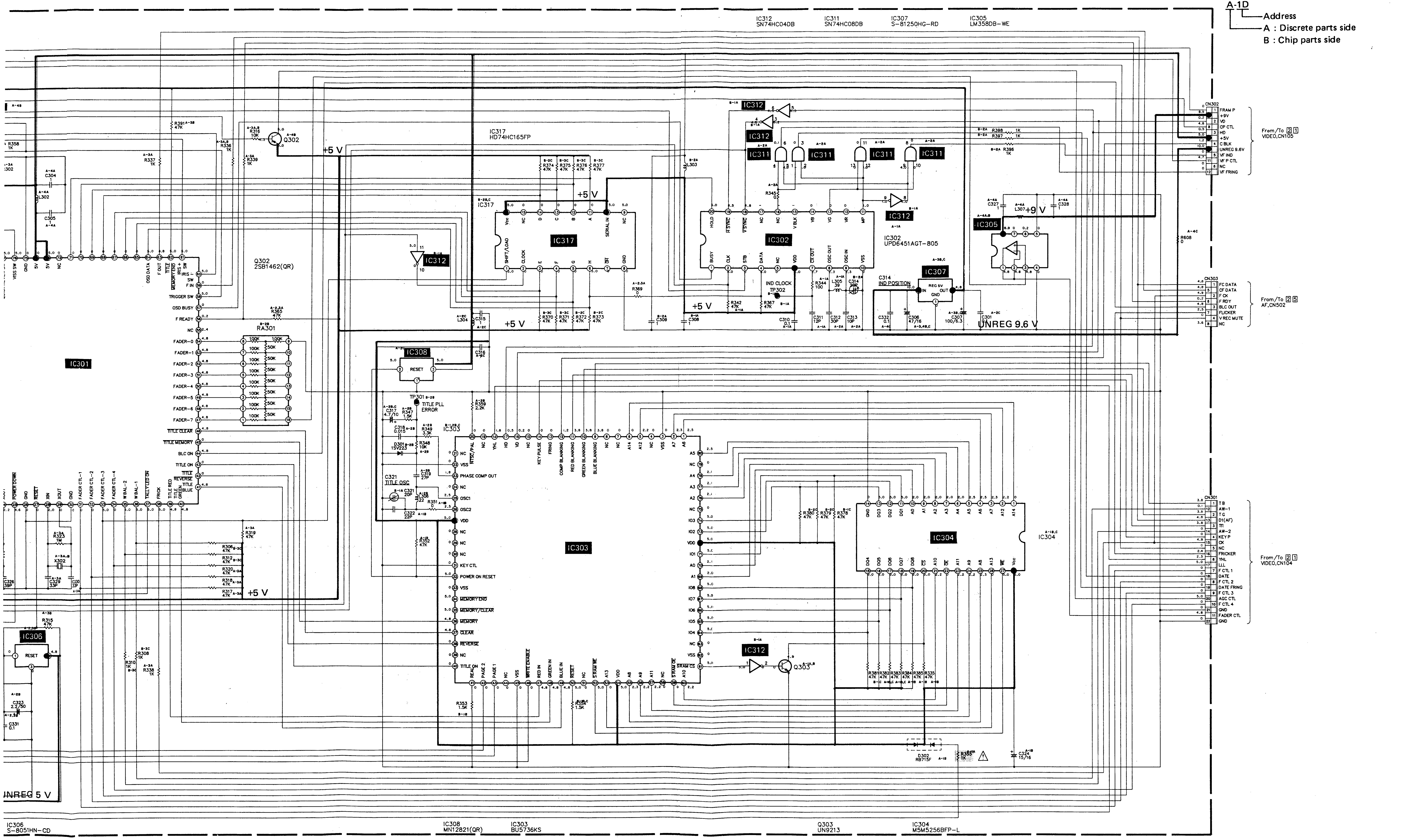
28 CAMERA SW
D701–D708 MA8075
29 DISPLAY SW
D771–D774 MA8075
27 TITLE SW
D741,D742 SLM-125VWS-X
D743,D744 MA8075
23 CTL
IC314 TC7S04F
Q304 2SC3936(C)
IC301 M37413E6-105FP
IC313 TC7S04F
IC312 SN74HC04DB
IC317 HD74HC165FP
Q302 2SB1462(QR)
IC310 MM1028-BF
IC309 RH5VA26A
Q301 2SB1462(QR)
IC318 S-8054HN-CB
IC306 S-8051HN-CD
IC308 MN12821(QR)
IC303 BU5736KS
Q305 2SC4655
IC319 TC7S04F
D304,D305 MA8075
From/To 01 MAIN,CN8
From 05 MIC JACK,CN1
UNREG 5 V
+5 V
TITLE PLL ERROR
TITLE OSC
IND CLOCK

● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

● Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.

● Address of chip parts
A-1D
Address
A : Discrete parts side
B : Chip parts side

IC312 SN74HC04DB
IC311 SN74HC08DB
IC307 S-81250HG-RD
IC305 LM358DB-WE



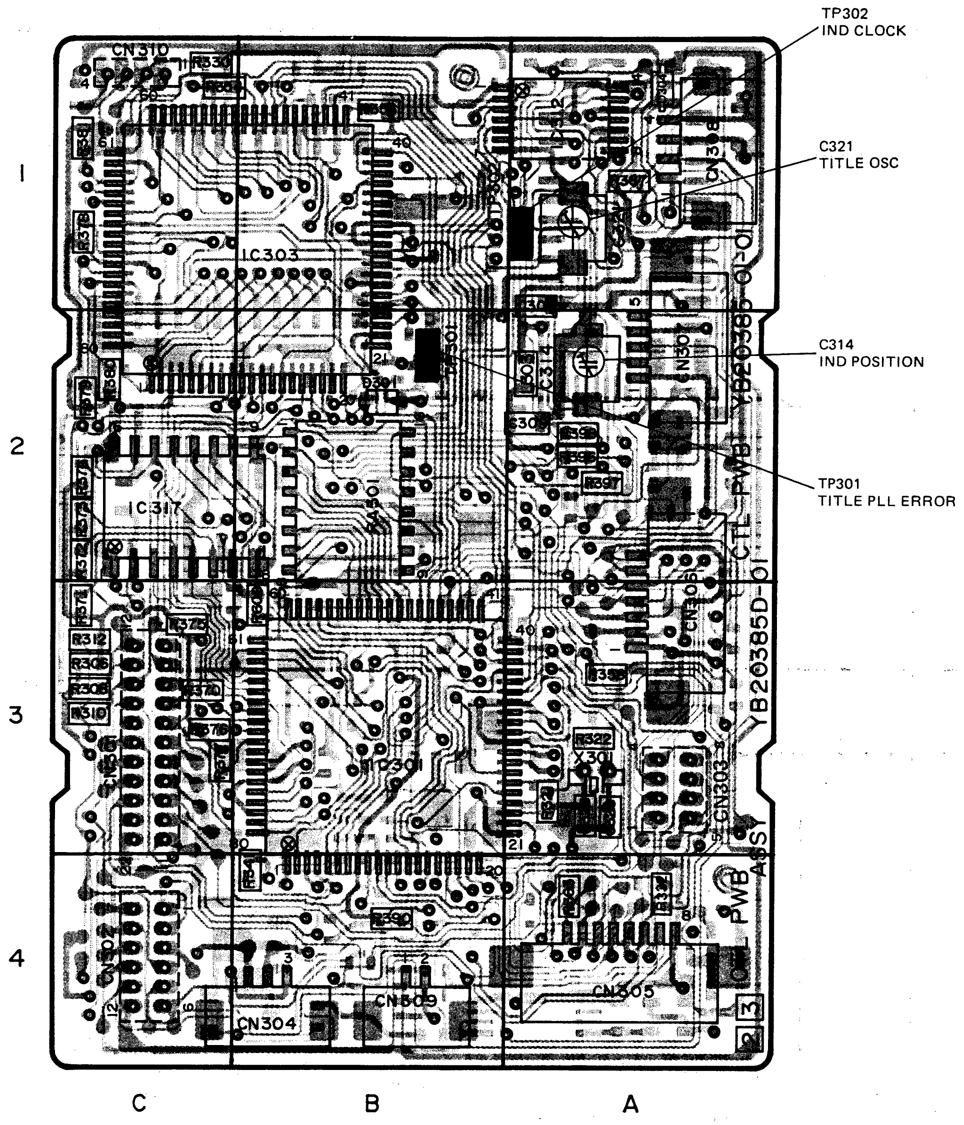
IC301
IC302
UPD6451AGT-805
IC303
IC304
IC305
IC306
IC307
IC308
IC311
IC312
IC317
HD74HC165FP
Q302
2SB1462(QR)
Q303
RA301
CN301
CN302
CN303
+5 V
+9 V
UNREG 9.6 V
UNREG 5 V
From/To 2 1 VIDEO,CN105
From/To 2 5 AF,CN502
From/To 2 1 VIDEO,CN104
TITLE PLL ERROR
TITLE OSC
IND CLOCK
IND POSITION
RESET
REG 5V
D302 RB715F

IC306 S-8051HN-CD
IC308 MN12821(QR)
IC303 BU5736KS
Q303 UN9213
IC304 M5M5256BFP-L

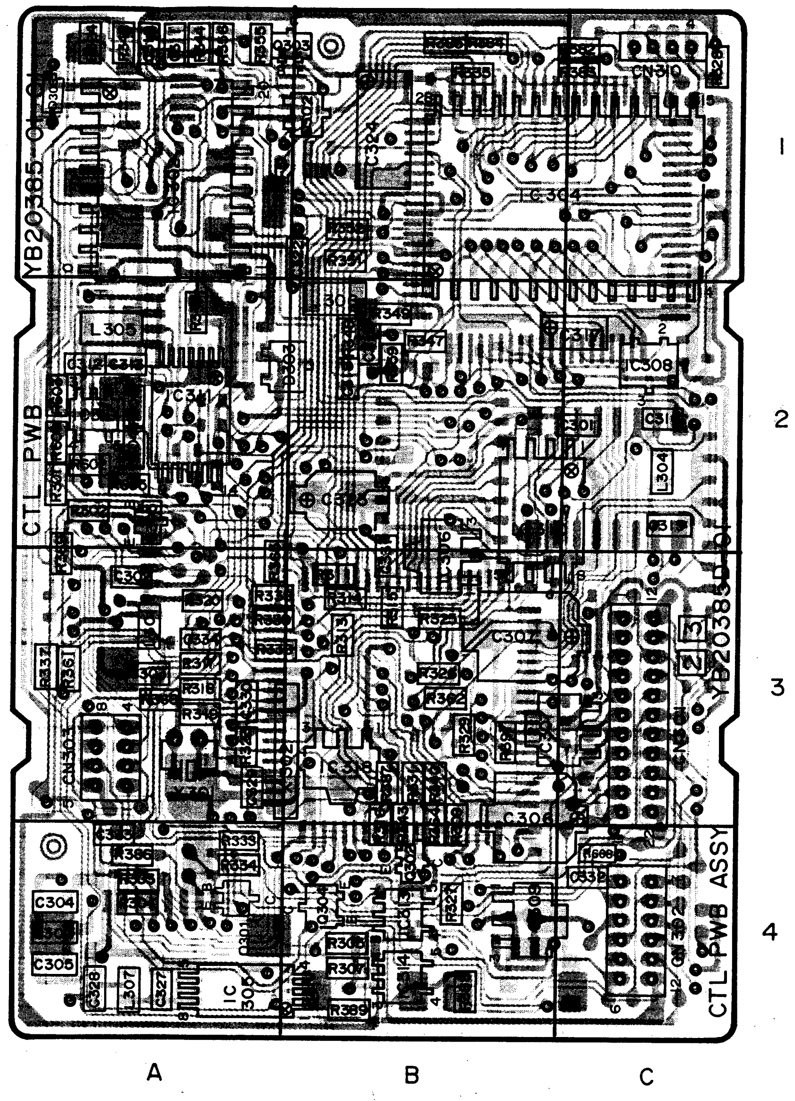
D E F G H I J K L

5.23 CONTROL, TITLE SW, CAMERA SW & DISPLAY SW CIRCUIT BOARD

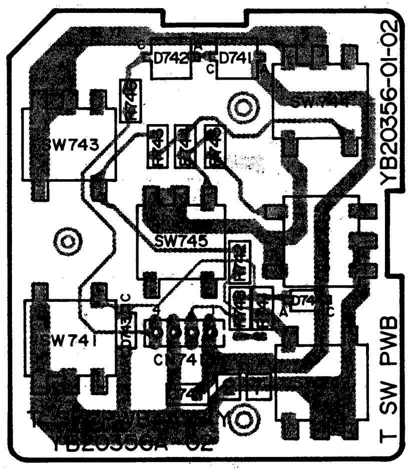
– Rear –
(B)

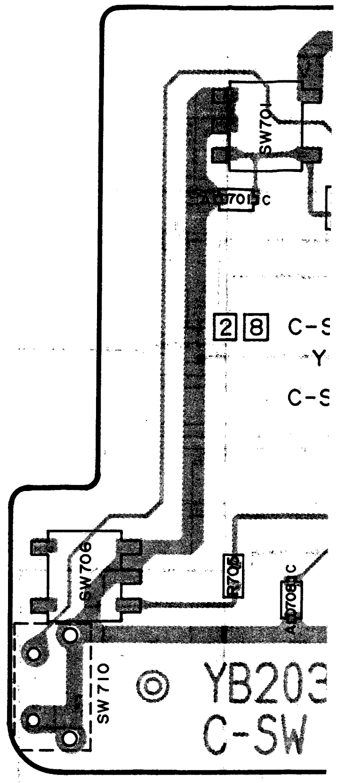

TP302
IND CLOCK
C321
TITLE OSC
C314
IND POSITION
TP301
TITLE PLL ERROR
CN310
IC303
IC317
IC301
CN304
CN309
CN305
CN303
X301
YB20385D-01
CTL PWB ASSY
1
2
3
4
C
B
A

– Front –
(A)

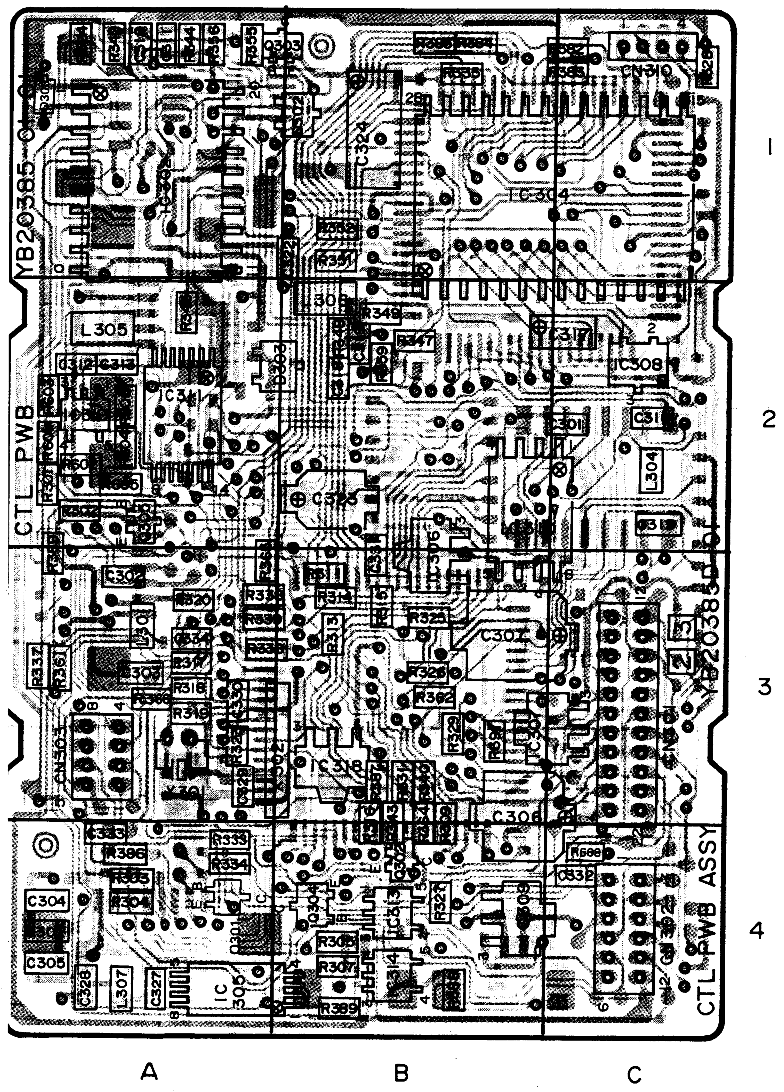

YB20385-01-01
CTL PWB
CN310
IC304
IC308
IC307
IC306
L305
L304
L307
C304
C305
YB20385D-01
CTL PWB ASSY
1
2
3
4
A
B
C

– TITLE SW –


D742
D741
SW743
SW745
SW741
YB20356-01-02
T SW PWB
YB20356A-02

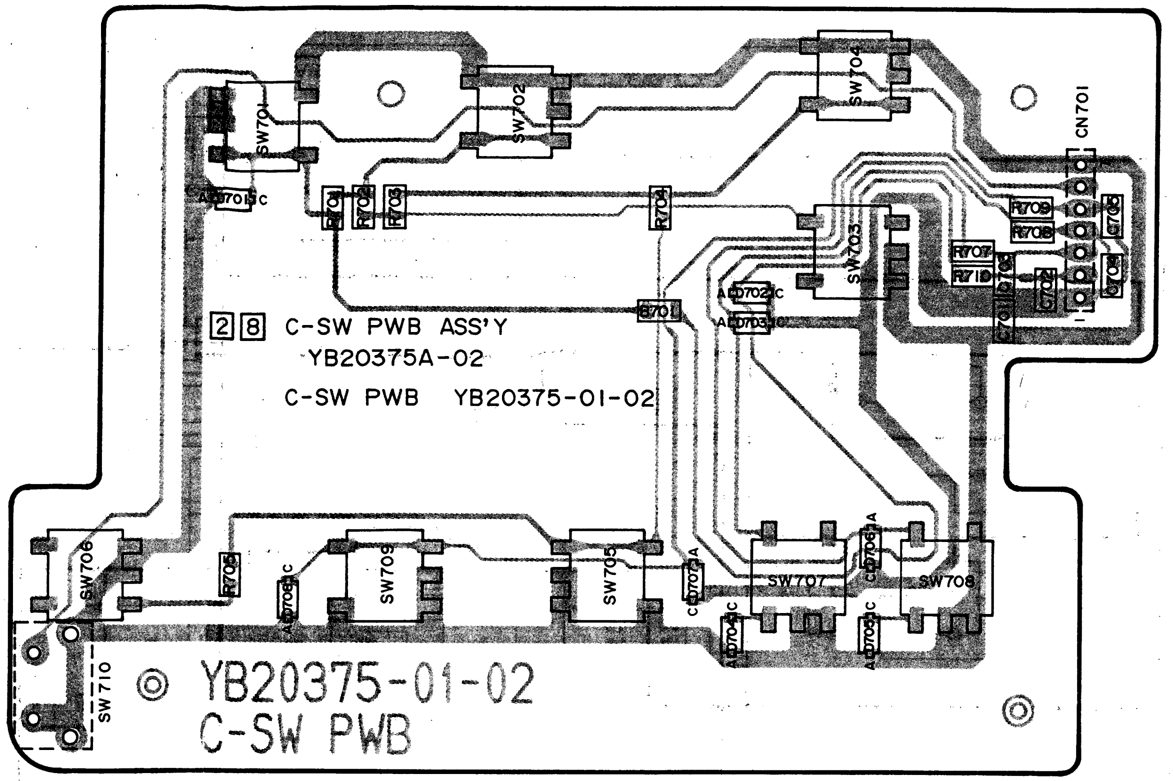

SW701
SW706
SW710
YB203
C-SW

– Front –
(A)



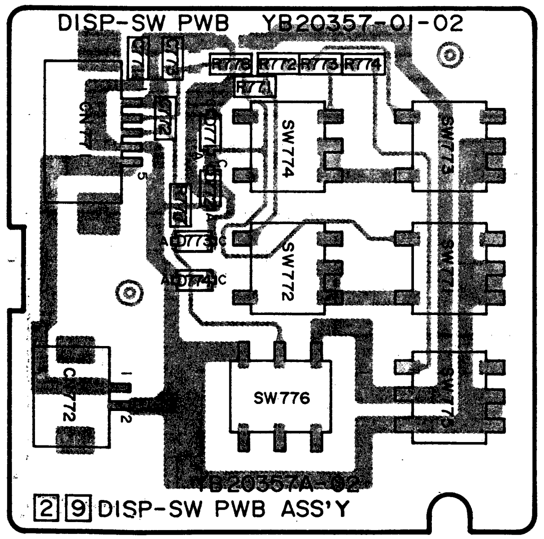
YB20385-01-02
CTL PWB
CTL PWB ASSY
IC304
IC305
CN310
L305
L307
C304
C305
1
2
3
4
A
B
C

– CAMERA SW –



2 8 C-SW PWB ASS'Y
YB20375A-02
C-SW PWB YB20375-01-02
YB20375-01-02
C-SW PWB
CN701
SW701
SW702
SW703
SW704
SW705
SW706
SW707
SW708
SW709
SW710
R701
R702
R703
R704
R705
R707
R708
R709
R710

– DISPLAY SW –

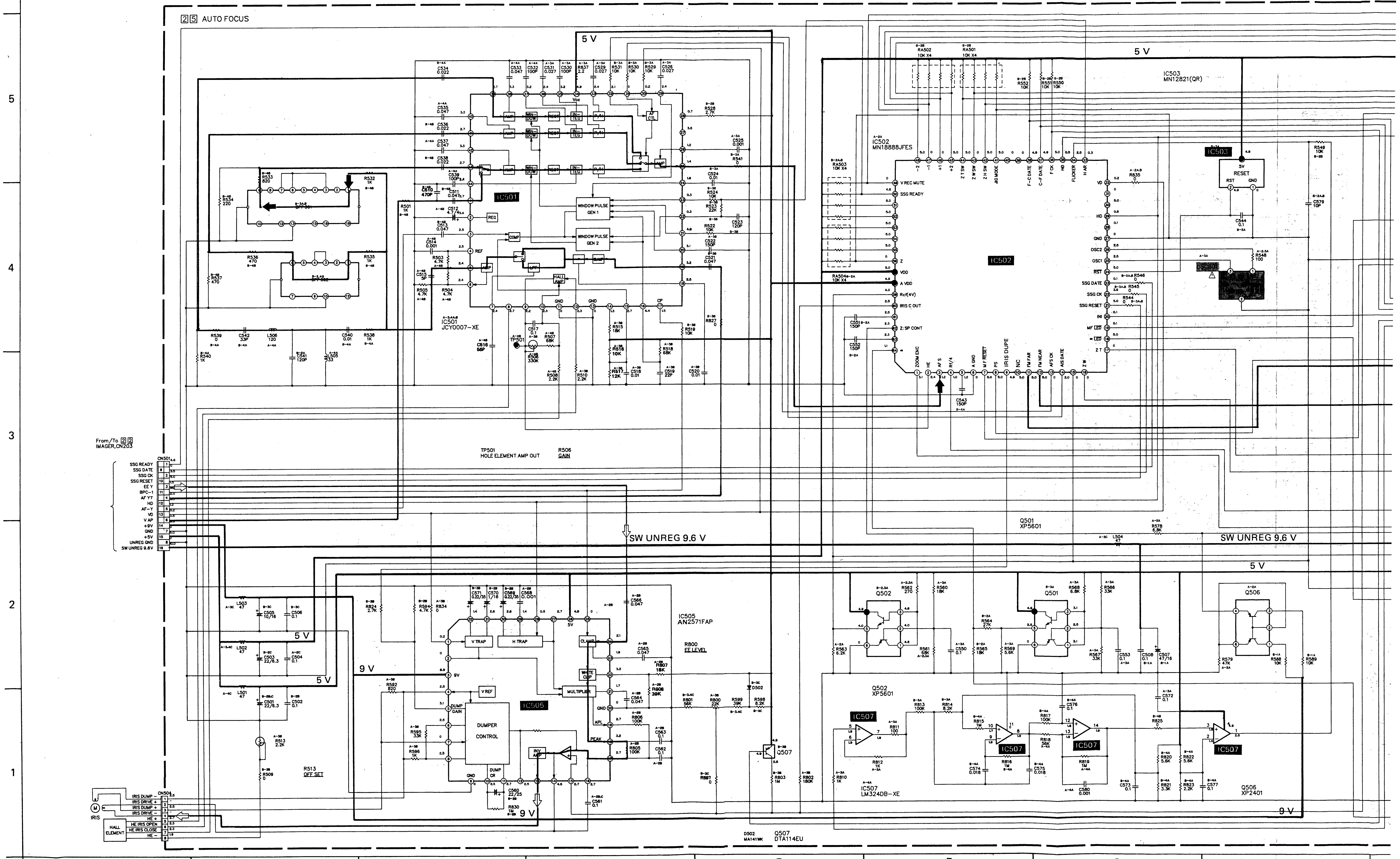


DISP-SW PWB YB20357-01-02
YB20357A-02
2 9 DISP-SW PWB ASS'Y
SW772
SW773
SW774
SW775
SW776
CN772
R771
R772
R773
R774
R775
R776

5.24 AUTO FOCUS SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.

- Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.



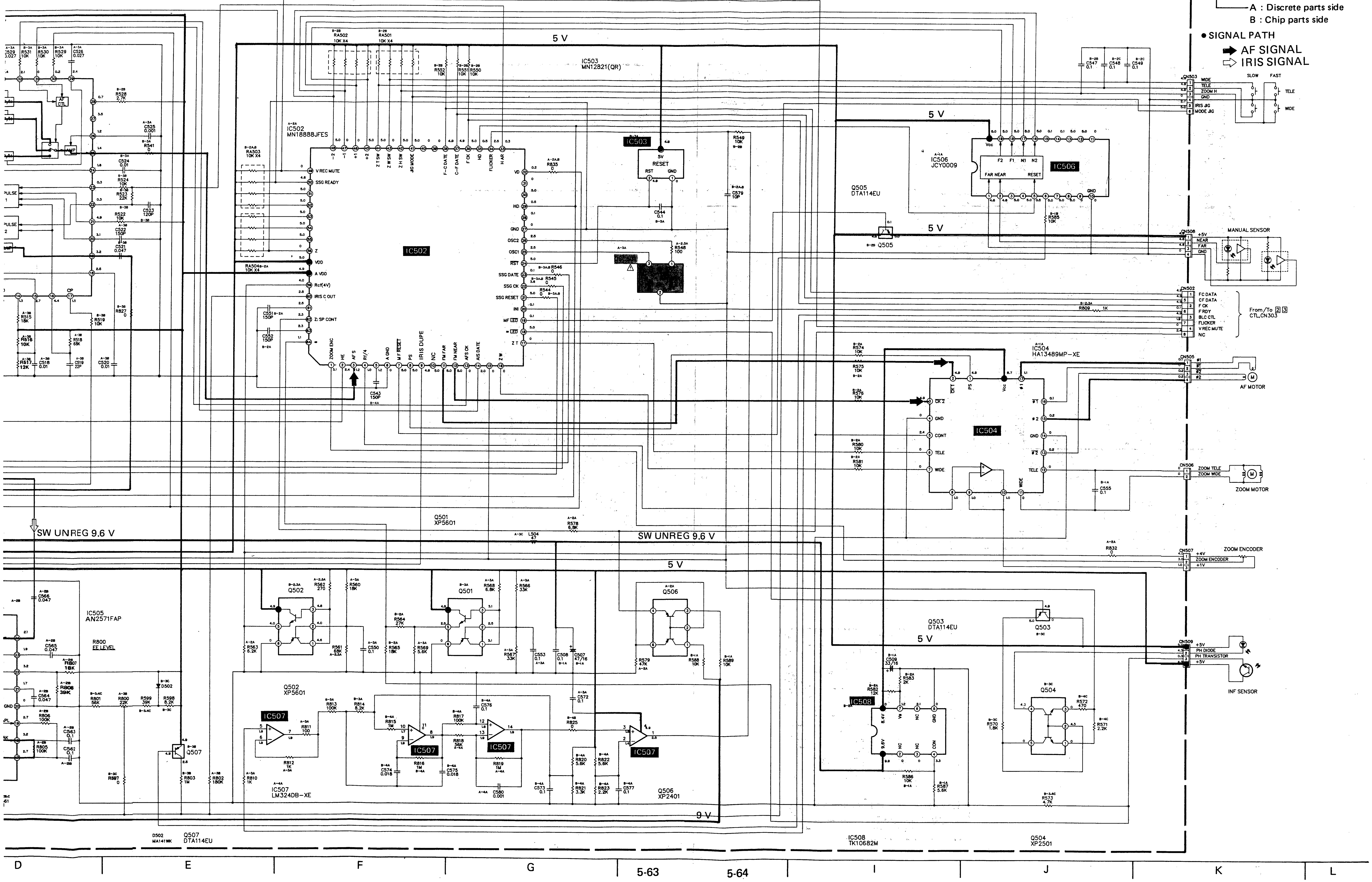
25 AUTO FOCUS
5 V
IC501
JCY0007-XE
IC502
MN18888JFES
IC503
MN12821(QR)
IC505
AN2571FAP
IC507
LM324DB-XE
Q501
XP5601
Q502
XP5601
Q506
XP2401
Q507
DTA114EU
D502
MA141WK
TP501
HOLE ELEMENT AMP OUT
R506
GAIN
R800
EE LEVEL
R513
OFF SET
WINDOW PULSE GEN 1
WINDOW PULSE GEN 2
HALL AMP
DUMPER CONTROL
V TRAP
H TRAP
CLAMP
WHITE CLIP
MULTIPLIER
VREF
INV AMP
RESET
From/To 22
IMAGER,CN203
CN501
SSG READY
SSG DATE
SSG CK
SSG RESET
EE Y
BPC-1
AF YT
HD
AF-Y
VD
V AP
+9V
GND
+5V
UNREG GND
SW UNREG 9.6V
CN504
IRIS DUMP -
IRIS DRIVE +
IRIS DUMP +
IRIS DRIVE -
HE +
HE IRIS OPEN
HE IRIS CLOSE
HE -
IRIS
HALL ELEMENT
SW UNREG 9.6 V
9 V
A
B
C
D
E
F
G
1
2
3
4
5
6

● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.

● Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.

● Address of chip parts
A-1D — Address
A : Discrete parts side
B : Chip parts side

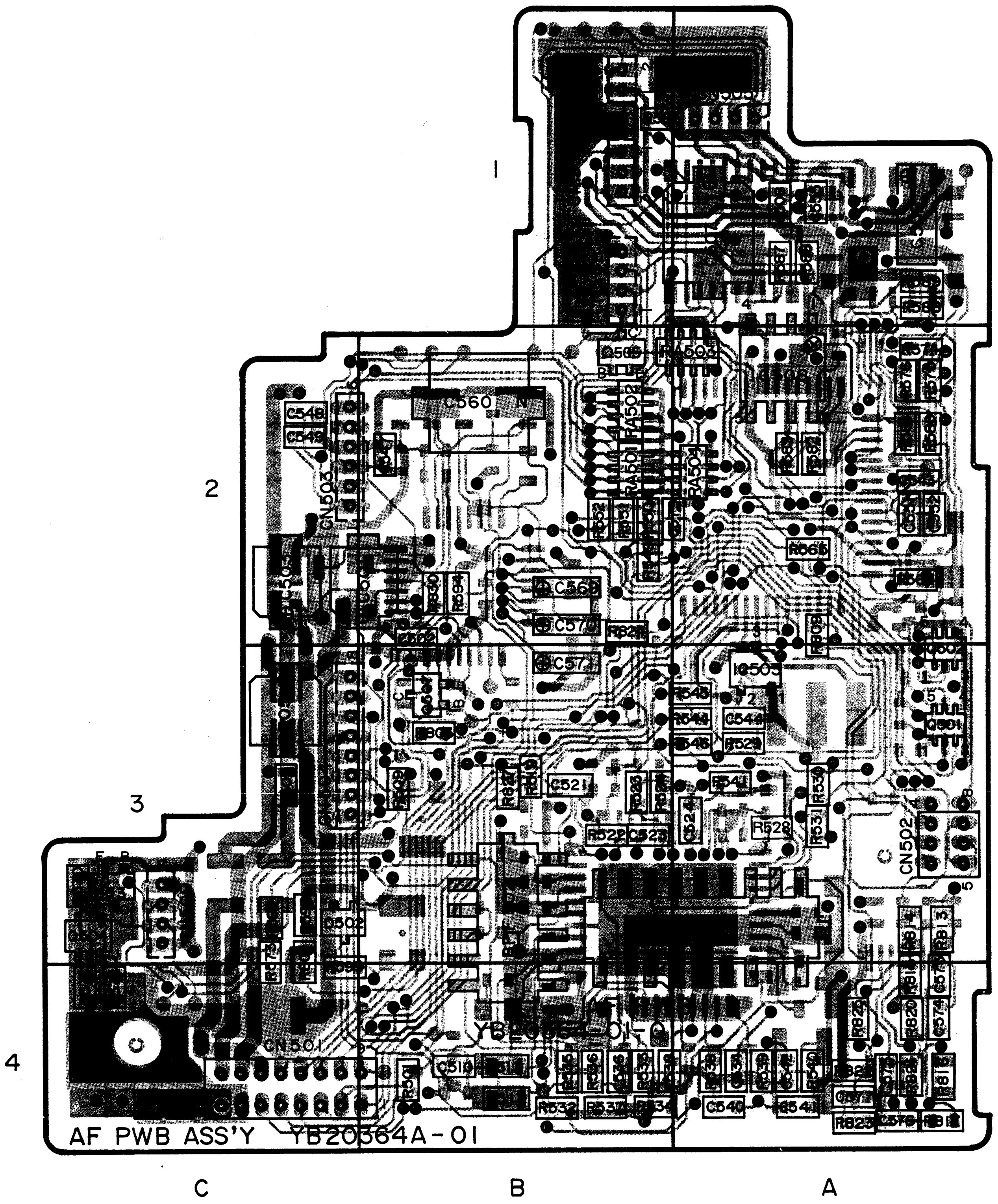
● SIGNAL PATH
➡ AF SIGNAL
⇨ IRIS SIGNAL



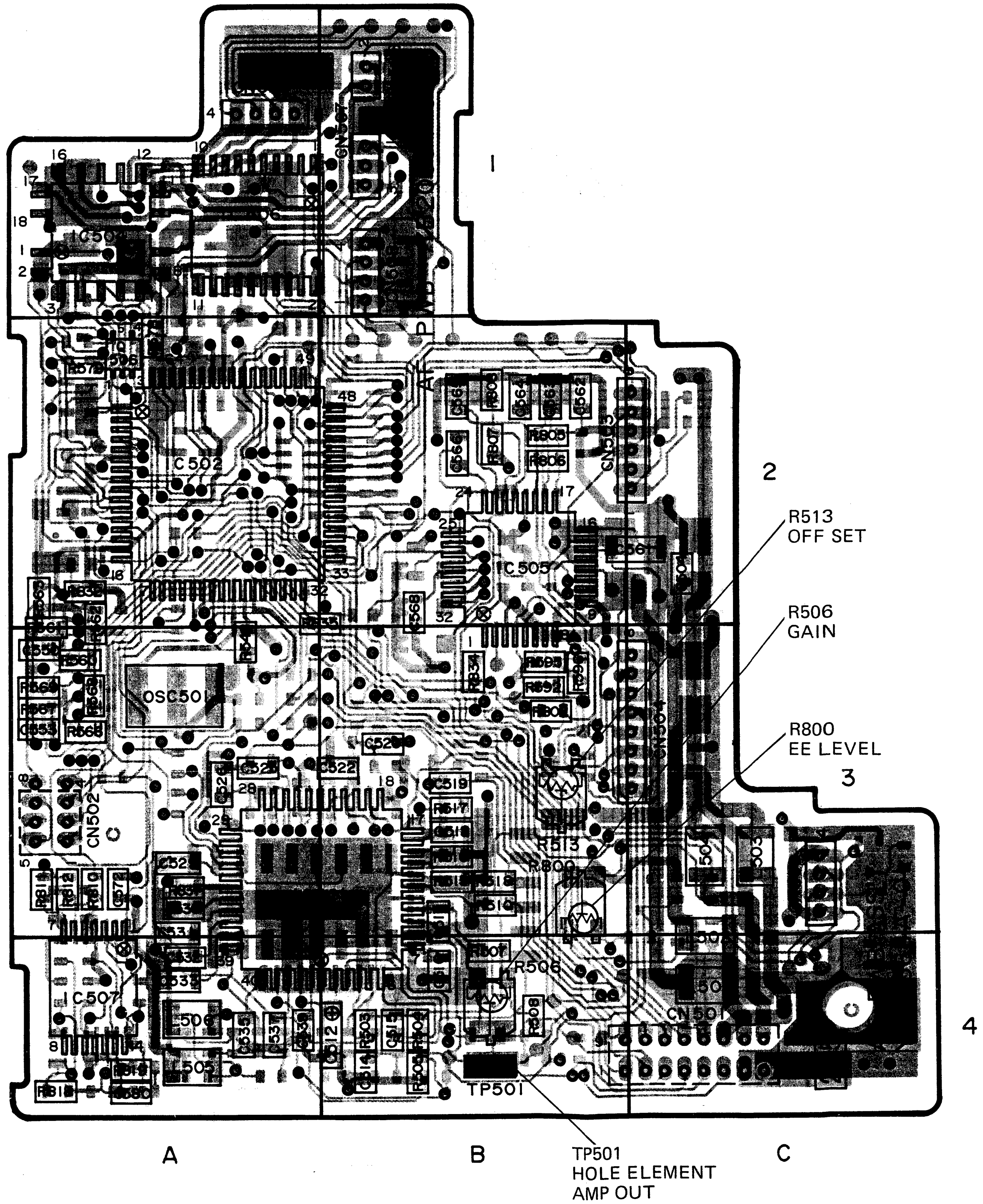
5 V
SW UNREG 9.6 V
9 V
IC502
MN18888JFES
IC503
MN12821(QR)
IC504
HA13489MP-XE
IC505
AN2571FAP
IC506
JCY0009
IC507
LM324DB-XE
IC508
TK10682M
Q501
XP5601
Q502
XP5601
Q503
DTA114EU
Q504
XP2501
Q505
DTA114EU
Q506
XP2401
Q507
DTA114EU
D502
MA141WK
RA501 10K X4
RA502 10K X4
RA503 10K X4
RA504 10K X4
R800 EE LEVEL
AF CTL
AMP
RESET
RST
GND
V REC MUTE
SSG READY
VDD
A VDD
Rcf(4V)
IRIS C OUT
Z: SP CONT
ZOOM ENC
HE
AFS
RI/4
A GND
M/F RESET
PS
IRIS DUPE
NC
FM FAR
FM NEAR
AFS CK
AIS DATE
Z W
Z T SW
Z W SW
JIG MODE
F-C DATE
C-F DATE
F CK
HD
FLICKER
HAR
VD
OSC2
OSC1
SSG DATE
SSG CK
SSG RESET
INI
MF LED
Z T
F2 F1 N1 N2
FAR NEAR
Vcc
CK1
CK2
CONT
TELE
WIDE
CN503
WIDE
TELE
ZOOM H
GND
IRIS JIG
MODE JIG
SLOW
FAST
CN508
+5V
NEAR
FAR
MANUAL SENSOR
CN502
F C DATA
C F DATA
F CK
F RDY
BLC CTL
FLICKER
V REC MUTE
NC
From/To 2 3 CTL CN303
CN505
AF MOTOR
CN506
ZOOM TELE
ZOOM WIDE
ZOOM MOTOR
CN507
+4V
ZOOM ENCODER
+1V
CN509
PH DIODE
PH TRANSISTOR
INF SENSOR
PULSE 1
PULSE 2
D
E
F
G
I
J
K
L

5.25 AUTO FOCUS CIRCUIT BOARD

– Rear –
(B)


1
2
3
4
AF PWB ASS'Y YB20364A-01
C
B
A

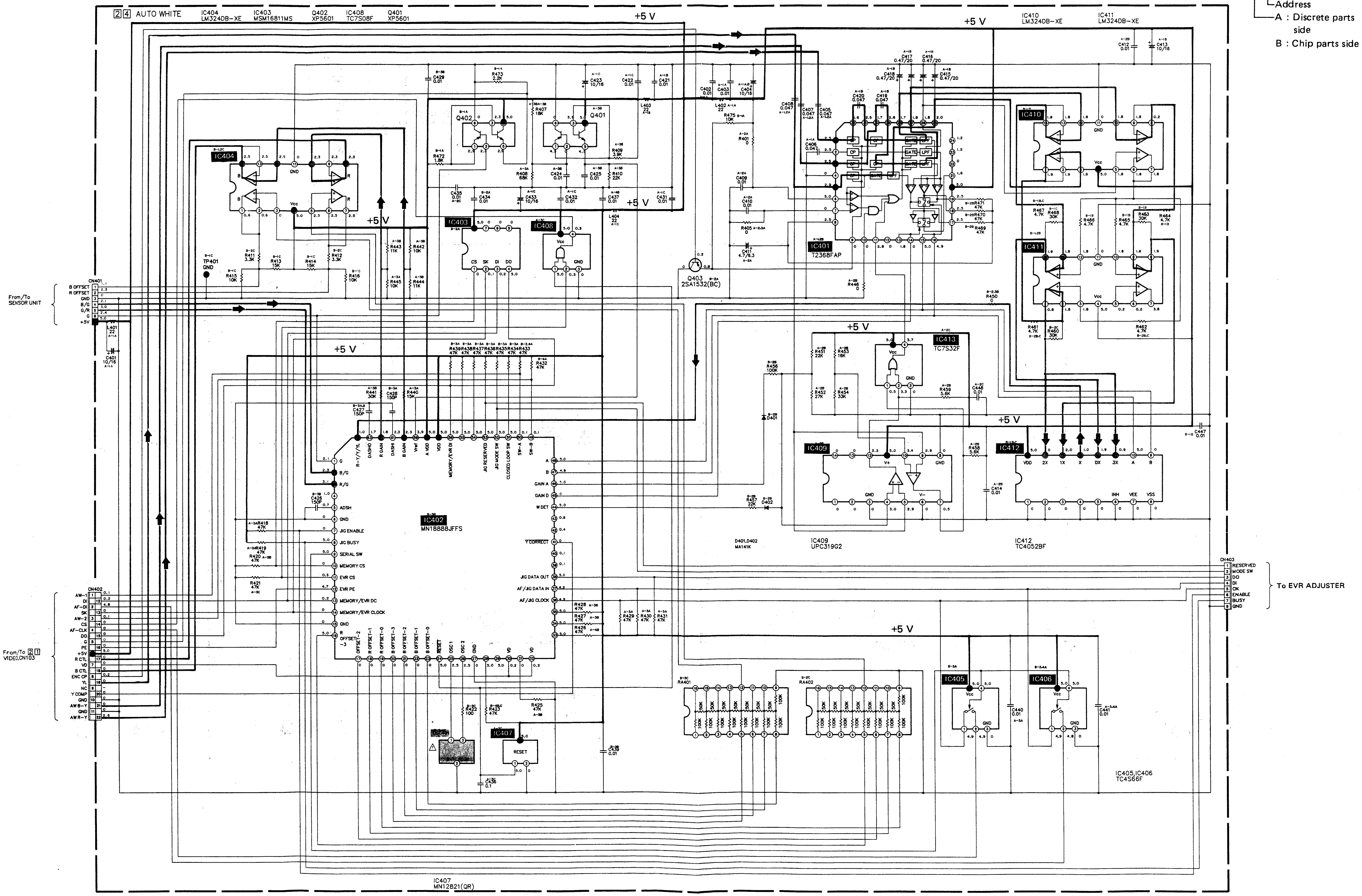
– Front –
(A)


1
2
R513
OFF SET
R506
GAIN
R800
EE LEVEL
3
4
TP501
HOLE ELEMENT
AMP OUT
A
B
C

5.26 AUTO WHITE SCHEMATIC DIAGRAM

- Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
- Voltage : Measured as the color bar pattern which lighted up brightly is shot in the rehersal mode.
- Address of chip parts

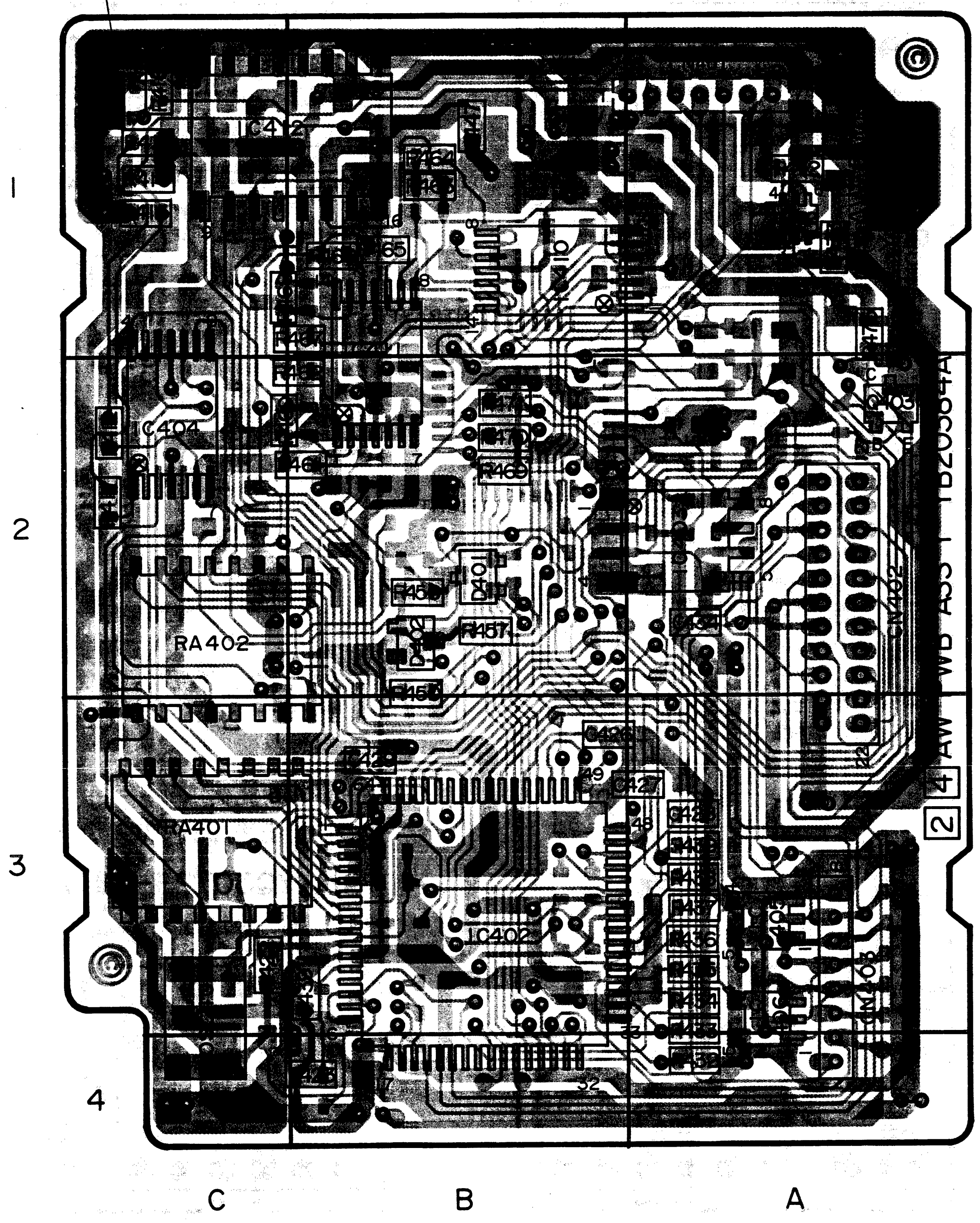
A-1D
└Address
└A : Discrete parts side
B : Chip parts side


2 4 AUTO WHITE
IC404 LM324DB-XE
IC403 MSM16811MS
Q402 XP5601
IC408 TC7S08F
Q401 XP5601
+5 V
IC410 LM324DB-XE
IC411 LM324DB-XE
IC401 T2368FAP
Q403 2SA1532(BC)
TP401 GND
IC413 TC7S32F
IC409 UPC319G2
IC412 TC4052BF
D401,D402 MA141K
IC402 MN18888JFFS
IC405 IC406
IC405,IC406 TC4S66F
IC407 MN12821(QR)
RESET
RA401
RA402
From/To SENSOR UNIT
CN401
B OFFSET
R OFFSET
GND
B/G
G/R
G
+5V
From/To 2 1 VIDEO,CN103
CN402
AW-1
DI
AF-DI
SK
AW-2
CS
AF-CLK
DO
G
PE
+5V
R CTL
VD
B CTL
ENC CP
YL
NC
Y COMP
GND
AW B-Y
GND
AW R-Y
CN403
RESERVED
MODE SW
DO
DI
CK
ENABLE
BUSY
GND
To EVR ADJUSTER
G
B/G
R/G
ADSH
GND
JIG ENABLE
JIG BUSY
SERIAL SW
MEMORY CS
EVR CS
EVR PE
MEMORY/EVR DC
MEMORY/EVR CLOCK
GND
R OFFSET-3
R-Y/Y/YL
DASH0
R GAIN
DASH1
B GAIN
Vref
A VDD
VDD
MEMORY/EVR DI
JIG RESERVED
JIG MODE SW
CLOSED LOOP SW
SW-A
SW-B
A
B
GAIN A
GAIN D
W DET
Y CORRECT
JIG DATA OUT
AF/JIG DATA IN
AF/JIG CLOCK
OFFSET-2
R OFFSET-1
B OFFSET-3
B OFFSET-2
B OFFSET-1
B OFFSET-0
RESET
OSC 1
OSC 2
GND
VD
HD
VDD 2X 1X X 0X 3X A B
INH VEE VSS
6
5
4
3
2
1
A
B
C
E
F
G
H

5.27 AUTO WHITE CIRCUIT BOARD

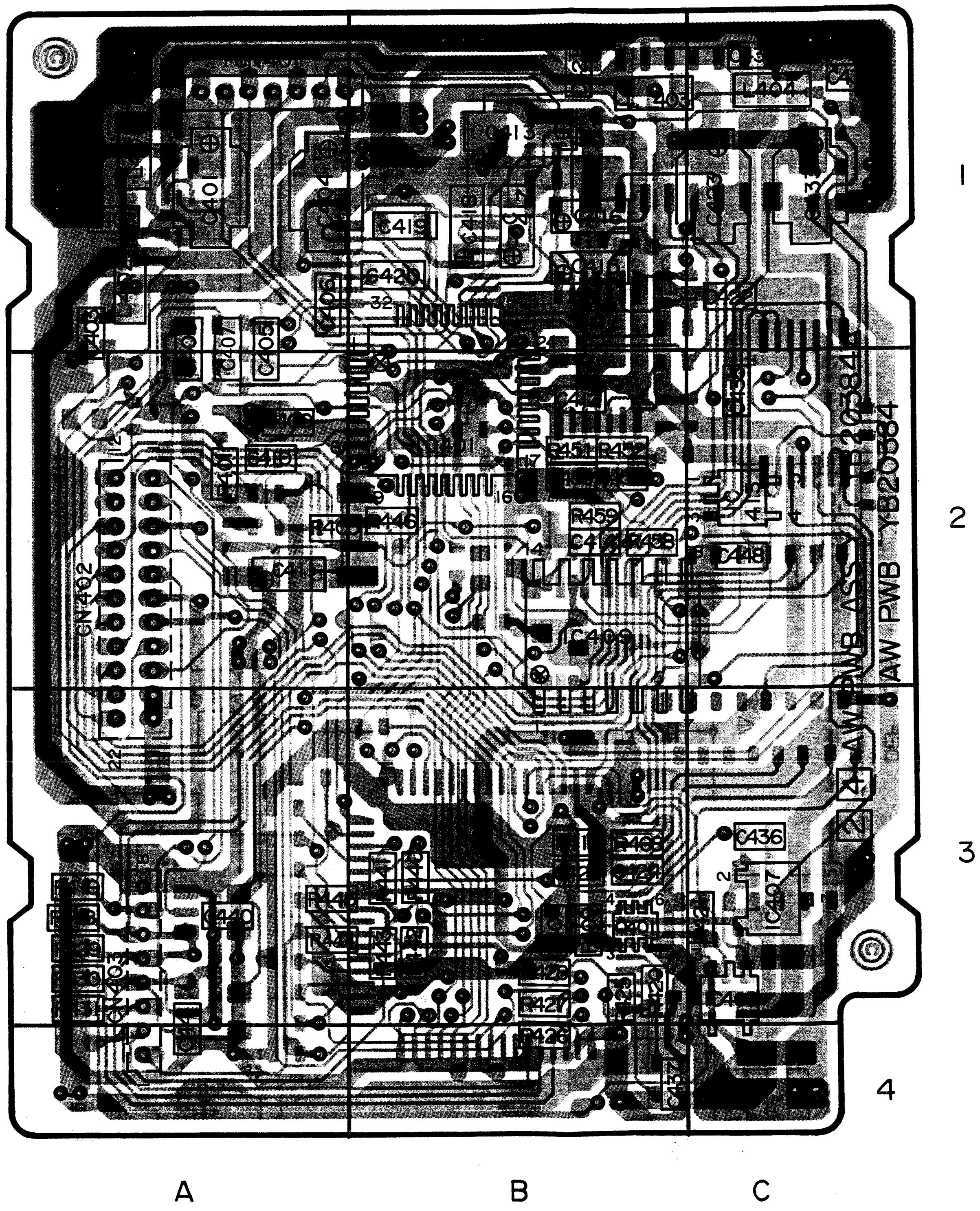
TP401
GND

— Rear —
(B)



C412
R464
R465
IC404
RA402
IC403
R455
R457
R456
C426
C427
RA401
IC402
CN402
AW WB ASS'Y YB20584A
4
2
1
2
3
4
C
B
A

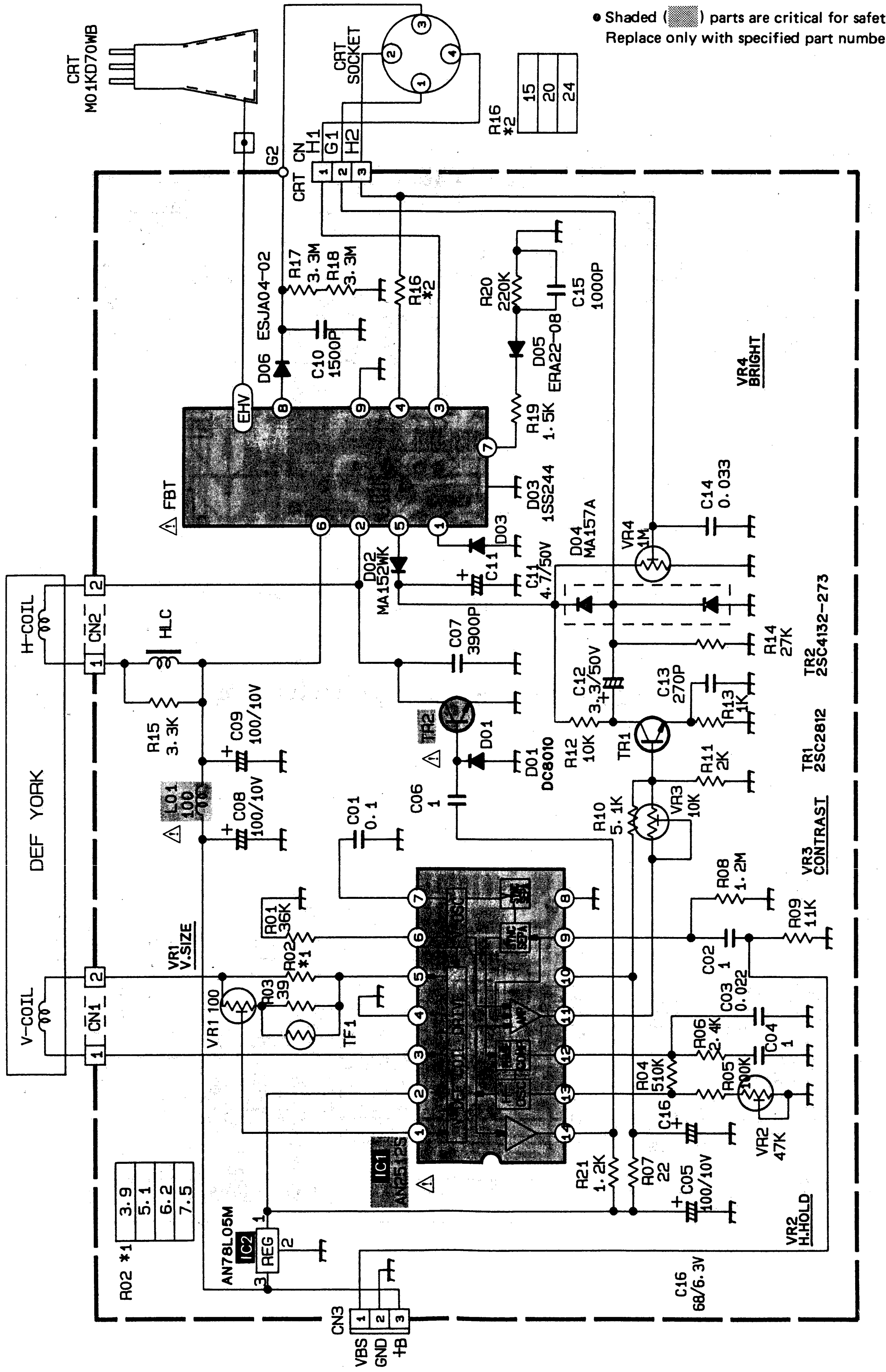
— Front —
(A)



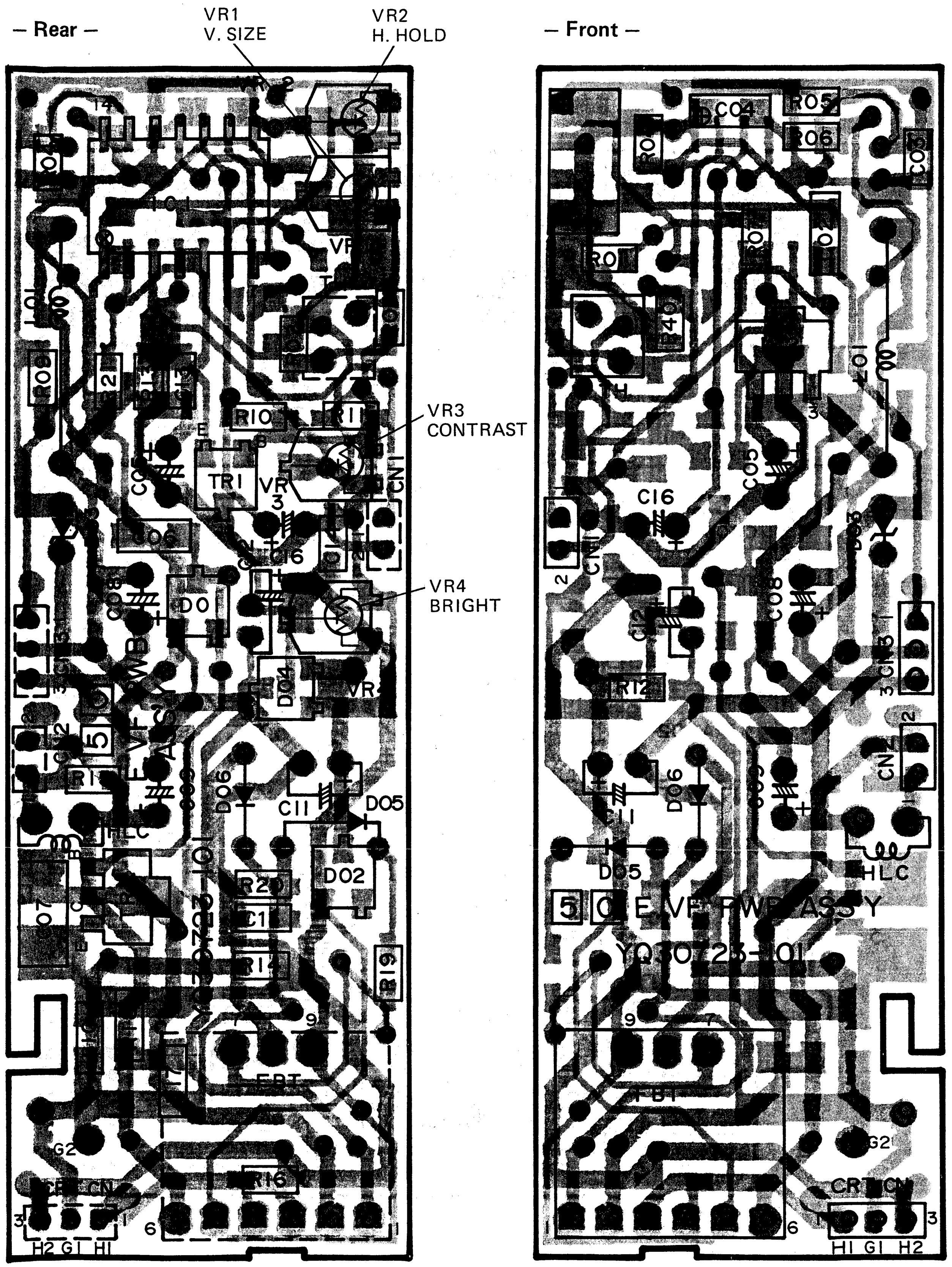
C404
Q413
C419
C420
C405
C406
C407
C408
C409
R451
R452
R459
R446
C418
C436
C407
CN402
C440
R427
R426
AW PWB ASS'Y YB20584
4
1
2
3
4
A
B
C

5.28 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM

● Shaded (▨) parts are critical for safety.
Replace only with specified part numbers.


CRT
M01KD70WB
CRT SOCKET
G2
CRT CN
H1
G1
H2
R16 *2
15
20
24
EHV
FBT
D06 ESJA04-02
R17 3.3M
R18 3.3M
C10 1500P
R20 220K
C15 1000P
D05 ERA22-08
R19 1.5K
D03 1SS244
D02 MA152WK
C11 4.7/50V
D04 MA157A
VR4 1M
C14 0.033
VR4 BRIGHT
H-COIL
CN2
HLC
C07 3900P
R14 27K
TR2 2SC4132-273
C12 3.3/50V
C13 270P
R13 1K
R15 3.3K
C09 100/10V
TR2
D01
D01 DC8010
R12 10K
TR1
R11 2K
TR1 2SC2812
DEF YORK
L01 100
C08 100/10V
C01 0.1
C06 1
R10 5.1K
VR3 10K
VR3 CONTRAST
R08 1.2M
R09 11K
R01 36K
R02 *1
R03 39
VR1 V.SIZE
V-COIL
CN1
VR1 100
TF1
IC1 AN2512S
C02 1
C03 0.022
R06 2.4K
C04 1
R04 510K
R05 100K
C16
VR2 47K
R21 1.2K
R07 22
C05 100/10V
VR2 H.HOLD
R02 *1
3.9
5.1
6.2
7.5
AN78L05M
IC2
REG
C16 68/6.3V
CN3
VBS
GND
+B

5.29 ELECTRONIC VIEWFINDER CIRCUIT BOARD


– Rear –
VR1 V. SIZE
VR2 H. HOLD
– Front –
VR3 CONTRAST
VR4 BRIGHT
TR1
CN1
C16
D06
D05
D02
HLC
FBT
G2
CRT CN
H2 G1 H1
H1 G1 H2
CN2
CN3
R05
R06
C04
5 C E VF PWB ASSY
YQ30123-101

SECTION 6
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

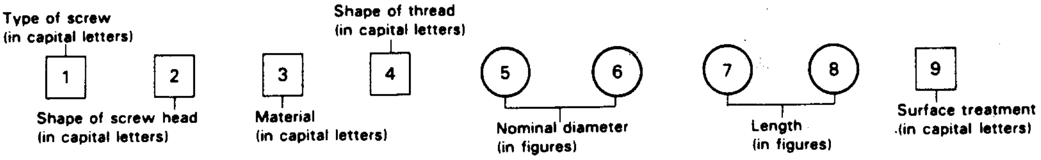
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTE: [M] indicates mechanical symbol number.

6.1 STANDARD PART NUMBER CODING

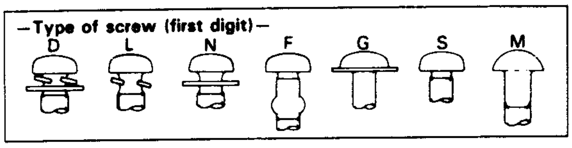
6.1.1 Screw coding

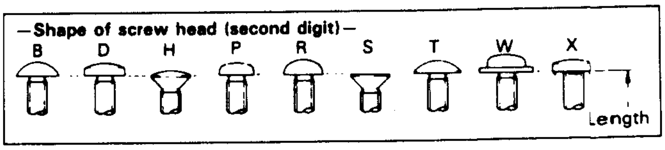
Standard screw part numbers are as follows.


Type of screw (in capital letters)
Shape of thread (in capital letters)
1
2
3
4
5
6
7
8
9
Shape of screw head (in capital letters)
Material (in capital letters)
Nominal diameter (in figures)
Length (in figures)
Surface treatment (in capital letters)

Type of screw (first digit)
S Normal screws
D Assembled machine screws (with plain and spring washers)
L 〃 (with spring washer)
N 〃 (with plain washer)
F Feather screws
G Washer head tapping screws
M Wood screws

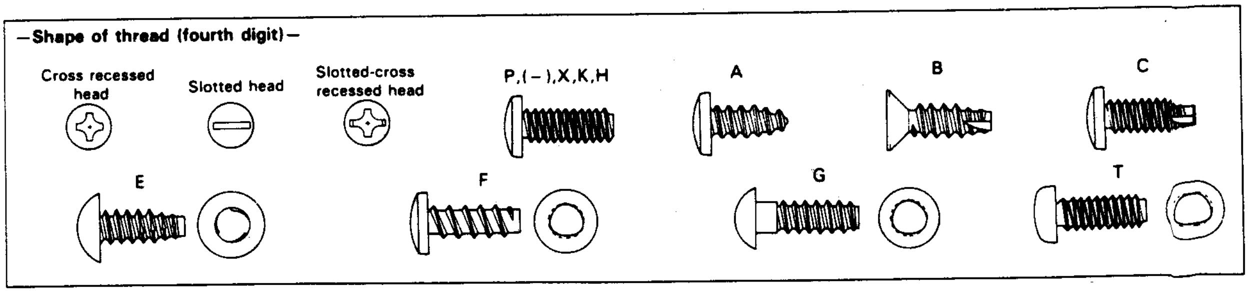
Shape of screw head (second digit)
B Brazier head
D Binding head
H Oval countersunk head
P Pan head
R Round head
S Flat head
T Truss head
W Washer head (machine screws)
X Toothed head


–Type of screw (first digit)–
D
L
N
F
G
S
M


–Shape of screw head (second digit)–
B
D
H
P
R
S
T
W
X
Length

Material (third digit)
S Steel
E Stainless steel
C Cast iron
U Copper
B Brass
P Phosphor bronze
N Nickel silver
Y Cast brass
A Aluminum
Z Zinc alloy
K Polycarbonate

Shape of thread (fourth digit)
P Cross recessed head screws
(–) Slotted head machine screws
X Slotted-cross recessed head machine screws
K Cross recessed head machine screws for precision equipment (type 1)
H 〃 (type 3)
A Cross recessed head tapping screws (type 1)
B 〃 (type 2)
C 〃 (type 3)
E Cross recessed head special tapping screws (brand : evertight)
F 〃 (brand : P-tight)
T 〃 (brand : taptight)
G 〃

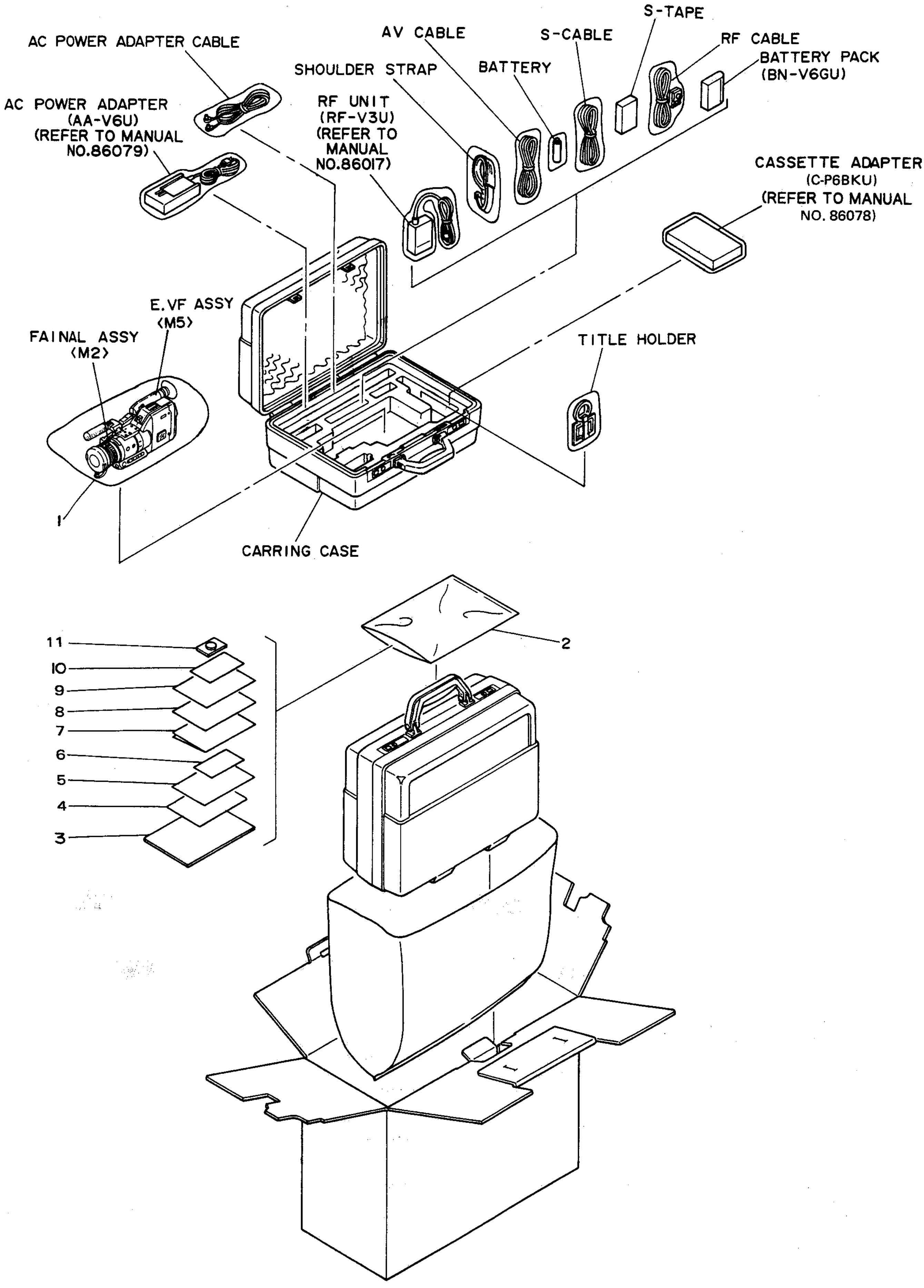

–Shape of thread (fourth digit)–
Cross recessed head
Slotted head
Slotted-cross recessed head
P,(–),X,K,H
A
B
C
E
F
G
T

Nominal diameter (fifth and sixth digits)
The fifth and sixth digits indicate a nominal diameter or dimension. If the dimension exceeds 10 mm, three digits are used. The number indicates a nominal diameter or dimension, given in millimeters, multiplied by ten.

Length (seventh and eighth digits)
The seventh and eighth digits indicate length in millimeters. The preceding figure is zero when the dimension is smaller than 10 mm. For machine screws used in precision equipment whose length is given in units of 0.1 mm, the number indicates ten times the size of their length.

Surface treatment (ninth digit)
Z Dichromate treatment after galvanizing (MFZn II-C)
N Nickel plating (MFNiII, MFNiI)
R Chromium plating (MBCrII, MBCrI)
G Silver plating (SP4)
B Black coating after plating
F Blackening of iron (FB)
M Blackening after galvanizing
K Pickling of brass (PF2)
P Phosphate treatment
W Uni-chrome plating
L Coated with transparent paint
A Colored red after galvanizing (MFZnII-C)
C Colored blue after galvanizing (MFZzII-C)
T Colored green after galvanizing (MFZnII-C)
V Colored purple after galvanizing (MFZnII-C)

6.2 PACKING ASSEMBLY <M1> (For U.S.A.)


AC POWER ADAPTER CABLE
AC POWER ADAPTER (AA-V6U) (REFER TO MANUAL NO.86079)
SHOULDER STRAP
RF UNIT (RF-V3U) (REFER TO MANUAL NO.86017)
AV CABLE
BATTERY
S-CABLE
S-TAPE
RF CABLE
BATTERY PACK (BN-V6GU)
CASSETTE ADAPTER (C-P6BKU) (REFER TO MANUAL NO. 86078)
E.VF ASSY <M5>
FAINAL ASSY <M2>
TITLE HOLDER
1
CARRING CASE
11
10
9
8
7
6
5
4
3
2

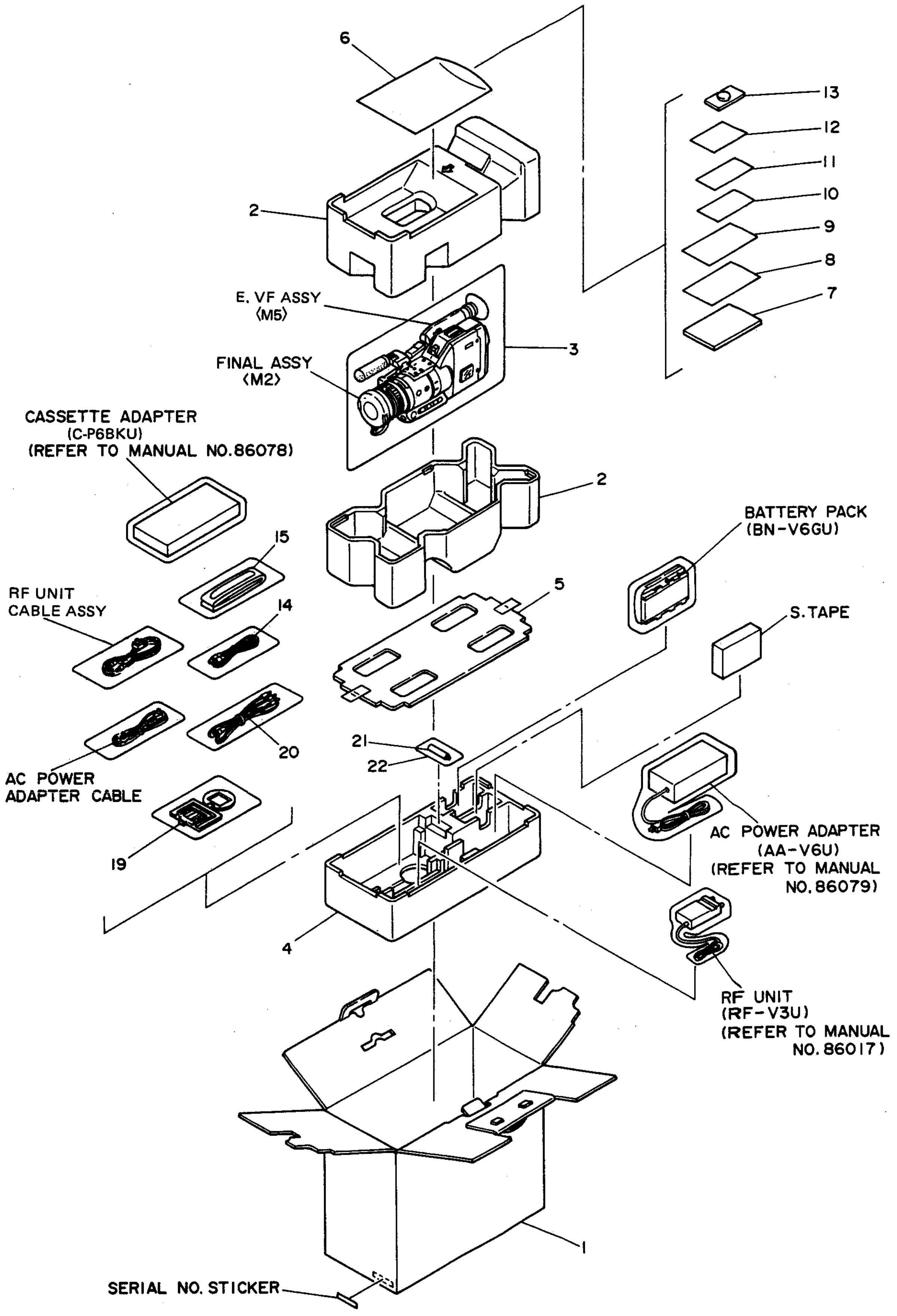
1. PACKING ASSEMBLY ⟨M1⟩ (FOR U.S.A.)

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	2	QPGA025-03505	POLY BAG
⚠	3	YU30052-143	INSTRUCTIONS
	4	YU30217-8	TITLE CARD
	5	YU41302	CATALOGU(ACC)
	6	BT-20046E	TOLL FREE CARD
⚠	7	PU33941-3-3	SAFETY CAUTION
	8	TCN-3409	TAPE CATALOG
	9	YU40406-29	MARKET.SHEET
	10	BT-20062B	WARRANTY CARD
⚠	11	YU40547	BATTERY

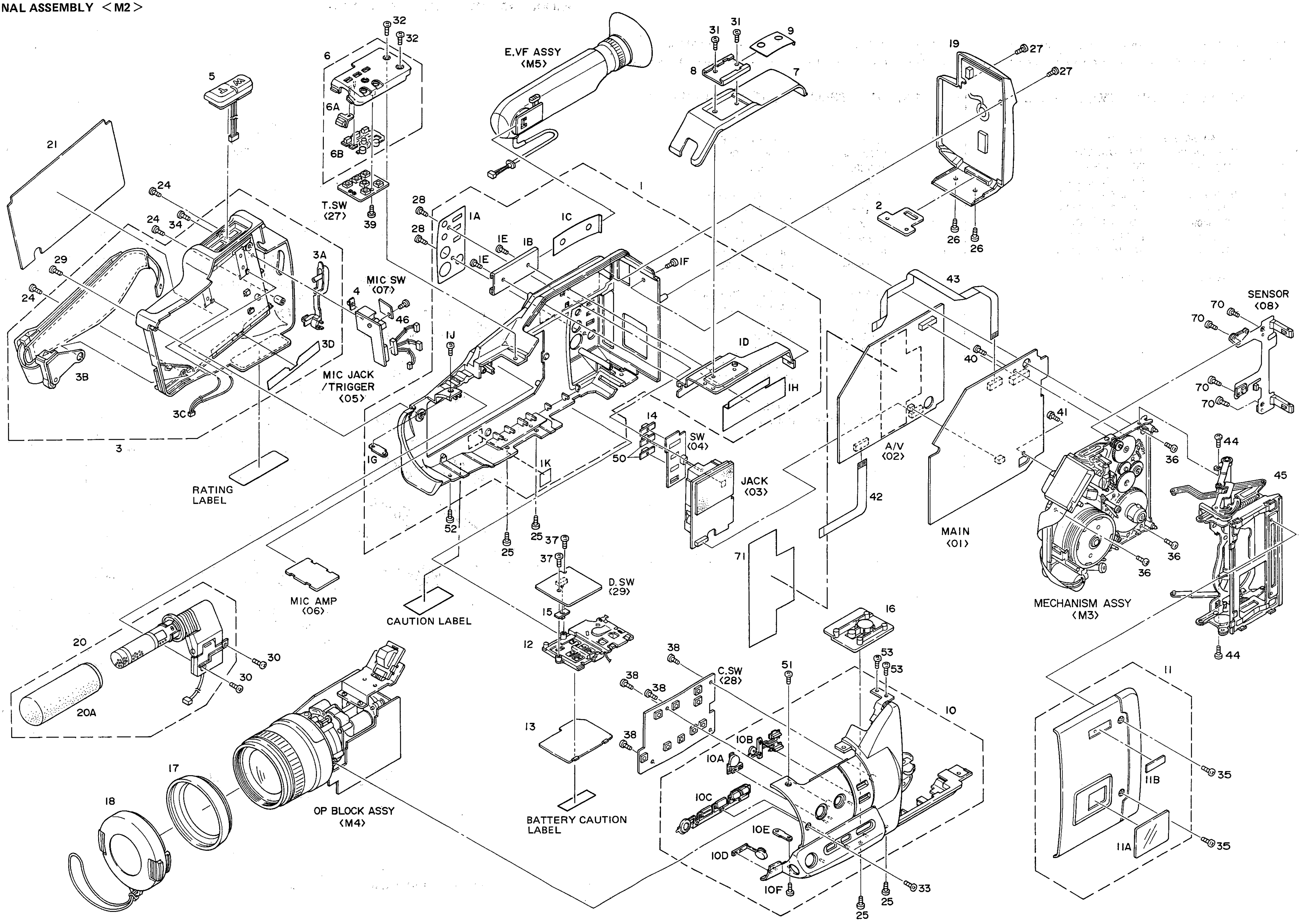
1. PACKING ASSEMBLY ⟨M1⟩ (FOR CANADA)

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	YQ30820	PACKING CASE
	2	YQ30760A	CUSHION ASSY
	3	YQM30021-10	POLY BAG
	4	YQ20421	ACC TRAY
	5	YQ30819	ACC TRAY SHEET
	6	QPGA025-03505	POLY BAG
⚠	7	YU30052-144	INSTRUCTIONS
	8	YU30217-8	TITLE CARD
⚠	9	PU33941-3-3	SAFETY CAUTION
	10	TCN-3409	TAPE CATALOG
	11	BT-20071A	INSTRUCTION GUIDE
	12	BT-20025K	WARRANTY CARD
⚠	13	YU40547	BATTERY
	14	YQ10055C	S CABLE
	15	YQ10188A-1	S STRAP ASSY
	19	YQ30785A-1	TITLE HOLDER
	20	YQ10246A	A/V OUT CABLE
	21	UM-3DJ	BATTERY
	22	QPGA005-01005	POLY BAG

PACKING ASSEMBLY < M1 > (For CANADA)


6
13
12
11
10
9
8
7
2
E. VF ASSY ⟨M5⟩
FINAL ASSY ⟨M2⟩
3
CASSETTE ADAPTER (C-P6BKU) (REFER TO MANUAL NO.86078)
2
15
BATTERY PACK (BN-V6GU)
RF UNIT CABLE ASSY
14
5
S.TAPE
20
21
22
AC POWER ADAPTER CABLE
AC POWER ADAPTER (AA-V6U) (REFER TO MANUAL NO.86079)
19
4
RF UNIT (RF-V3U) (REFER TO MANUAL NO.86017)
1
SERIAL NO. STICKER

6.3 FINAL ASSEMBLY <M2>


32
32
6
6A
6B
T.SW
(27)
39
5
E.VF ASSY
(M5)
31
31
9
8
7
19
27
27
2
26
26
21
24
24
34
24
29
3A
MIC SW
(07)
4
46
3D
3B
3C
MIC JACK
/TRIGGER
(05)
3
RATING
LABEL
28
1A
28
1E
1B
1C
1E
1F
1
1J
1D
1H
1G
1K
52
25
25
14
SW
(04)
50
JACK
(03)
43
40
41
A/V
(02)
42
MAIN
(01)
71
SENSOR
(08)
70
70
70
70
36
36
36
44
45
44
MECHANISM ASSY
(M3)
MIC AMP
(06)
CAUTION LABEL
37
37
D.SW
(29)
15
12
13
BATTERY CAUTION
LABEL
16
38
C.SW
(28)
38
38
38
51
53
53
10
10B
10A
10C
10E
10D
10F
25
25
33
11
11B
35
11A
35
20
30
30
20A
17
18
OP BLOCK ASSY
(M4)

＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊

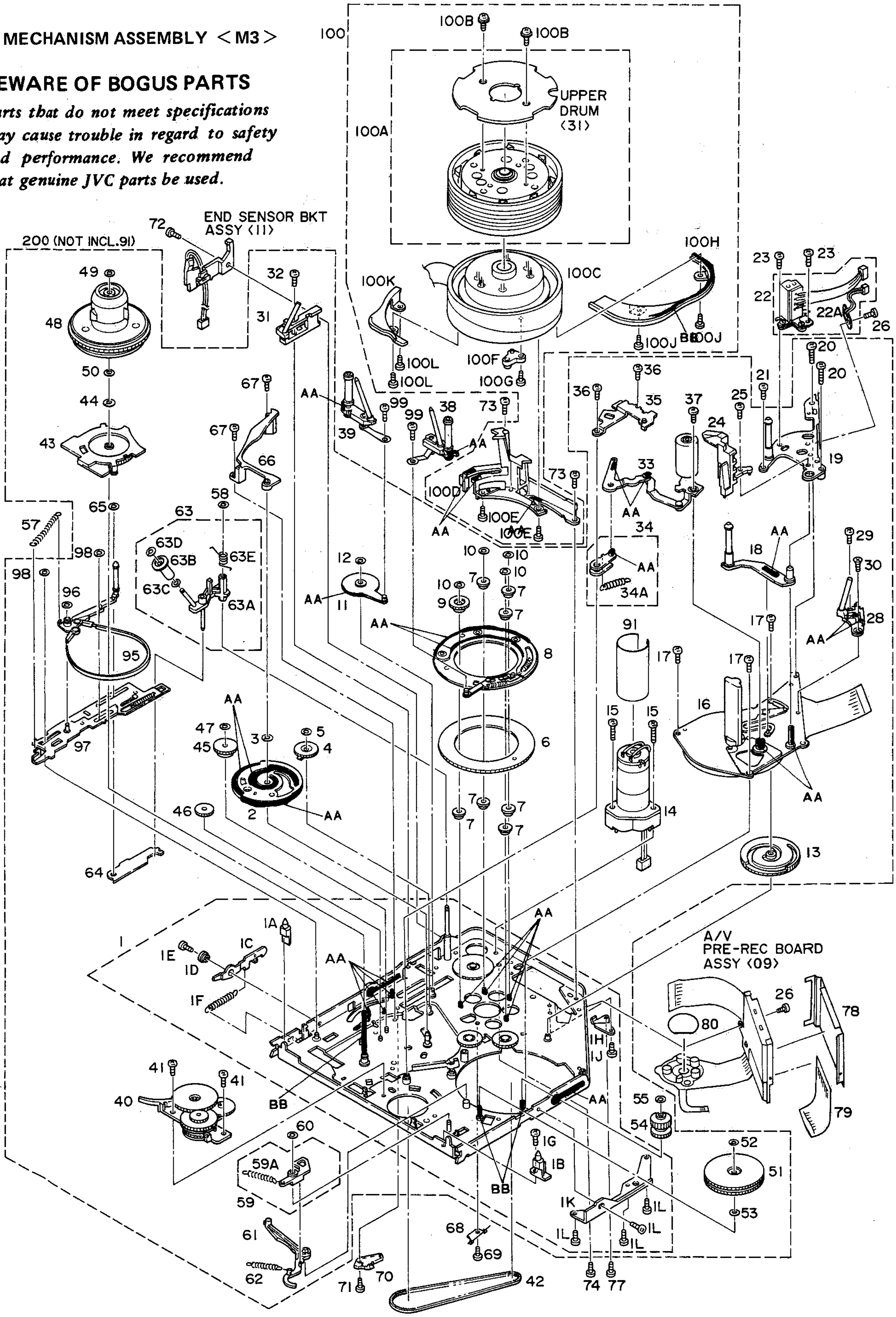
FINAL ASSEMBLY <M2>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
⚠ 1	YQ10189C-6	LOWER CASE ASSY
1A	YU20115-3-5	SHEET
1B	YQ41800	SHOE
1C	YQ41801	SHOE SPRING
1D	YQ30782-1-2	SHOE PLATE
1E	SSSK2004D	SCREW,X2
1F	YQM30032-1-2	SPECIAL SCREW
1G	YQ42001	BKT(FRONT)
1H	YQ42033	SHIELD PLATE
1J	YQM30032-1-2	SPECIAL SCREW
1K	YQM30019-12	PAD
2	YQ41834	HOOK
⚠ 3	YQ10191C-3	BATTERY BASE ASSY
3A	YQ20370-2	BUTTON(TRIGGER)
3B	YQ20246B-6	BELT(GRIP)ASSY
3C	ML-Y00536A-1	B/T WIRE ASSY
3D	YQ42004	SHIELD SPACER
4	YQ41811	KNOB(REC TIME)
5	YQ30648-2-2	ZOOM SWITCH
⚠ 6	YQ20315C-2	FRONT COVER ASSY
6A	YQ41803	INDICATOR
6B	YQ30684	TITLE BUTTON
⚠ 7	YQ20347-2-3	TOP COVER
8	YQ41910	SHOE
9	YQ41913-1-1	SHOE SPRING
⚠ 10	YQ10193C-6	UPPER CASE ASSY
10A	YQ41741	BUTTON(FULL)
10B	YQ30687	BUTTON(FOCUS)
10C	YQ30688	BUTTON(FADER)
10D	YQ41804-2	BUTTON(SUB TRI)
10E	YQ42013	BKT(BOTTM)
10F	YQM30032-1-2	SPECIAL SCREW,M2X4
⚠ 11	YQ20317C-6	CASSETTE COVER ASSY
11A	YQ30729C-2	CASSETTE WINDOW
11B	YU41749	STICKER
⚠ 12	YQ20319B-4	CLOCK BATTERY HOLDER ASSY
⚠ 13	YQ30724-1-3	CLOCK BATTERY COVER
14	YQ41810-1-4	KNOB
15	YQ41811	KNOB
16	YQ30725A-2	BASE ASSY
17	YQ30730	HOOD
18	YQ41805A-3	HOOD CAP ASSY
19	YQ20311-2-4	OPERATION UNIT
20	YQ30656A-3	MICROPHONE
20A	YQ30656-001	WIND SCREEN
⚠ 21	YU20099-2	BATTERY BASE SHEET
24	YQM30032-4-2	SPECIAL SCREW,X3 M2X6
25	YQM30032-2-2	SPECIAL SCREW,X4 M2X5
26	YQM30032-1-2	SPECIAL SCREW,X2 M2X4
27	YQM30032-4-2	SPECIAL SCREW,X2 M2X6
28	YQM30032-4-2	SPECIAL SCREW,X2 M2X6
29	YQM30032-41	SPECIAL SCREW,M2X11
30	YQM30032-6-2	SPECIAL SCREW,X2 M2X8
31	SSSK2004D	SCREW,X2
32	YQM30032-5-2	SPECIAL SCREW,X2 M2X6
33	YQM30032-4-2	SPECIAL SCREW,M2X6
34	YQM30032-4-2	SPECIAL SCREW,M2X6
35	YQM30032-1-2	SPECIAL SCREW,X2 M2X4
36	YQM30032-29	SCREW,X3
37	YQM30032-2-2	SPECIAL SCREW,X2 M2X5
38	YQM30032-2-2	SPECIAL SCREW,X4 M2X5
39	YQM30032-2-2	SPECIAL SCREW M2X5
40	SPSH1725M	SCREW
41	YQ41343	SPECIAL SCREW,M1.7X4
42	YU41678-2	A/V-CTL FPC
43	YU41679-4	MAIN-CV FPC
44	SPSH1725M	SCREW,X2
45	YQ30616A-19	HOUSING ASSY
46	ML-Y00512B	JACK PWB WIRE 2
50	YQ41810-2-4	KNOB,X2
51	YQM30032-1-2	SPECIAL SCREW,M2X4
52	YQM30032-1-2	SPECIAL SCREW,M2X4
53	YQM30032-1-2	SPECIAL SCREW,X2 M2X4
70	SPSH1725M	SCREW,X4
71	YQ30796-1-2	RADIATION PLATE

6.4 MECHANISM ASSEMBLY <M3>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



100
100B
100B
100A
UPPER DRUM <31>
100C
100H
100K
100L
100L
100F
100G
100J
100J
BB
END SENSOR BKT ASSY <11>
72
200 (NOT INCL.91)
49
48
50
44
43
65
57
98
98
96
95
97
64
32
31
67
67
66
58
63
63D
63B
63E
63C
63A
AA
39
99
99
38
73
73
100D
100E
100E
12
11
10
10
10
7
7
9
8
6
7
7
7
7
AA
47
45
3
5
4
2
46
36
36
35
37
25
24
21
20
20
19
33
34
34A
91
17
17
17
15
15
14
16
18
29
30
28
13
22
23
23
22A
26
1
1A
1C
1E
1D
1F
41
41
40
BB
60
59A
59
61
62
71
70
68
69
42
1G
1B
1H
1J
1K
1L
1L
1L
1L
74
77
55
54
52
51
53
A/V PRE-REC BOARD ASSY <09>
26
78
80
79

Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

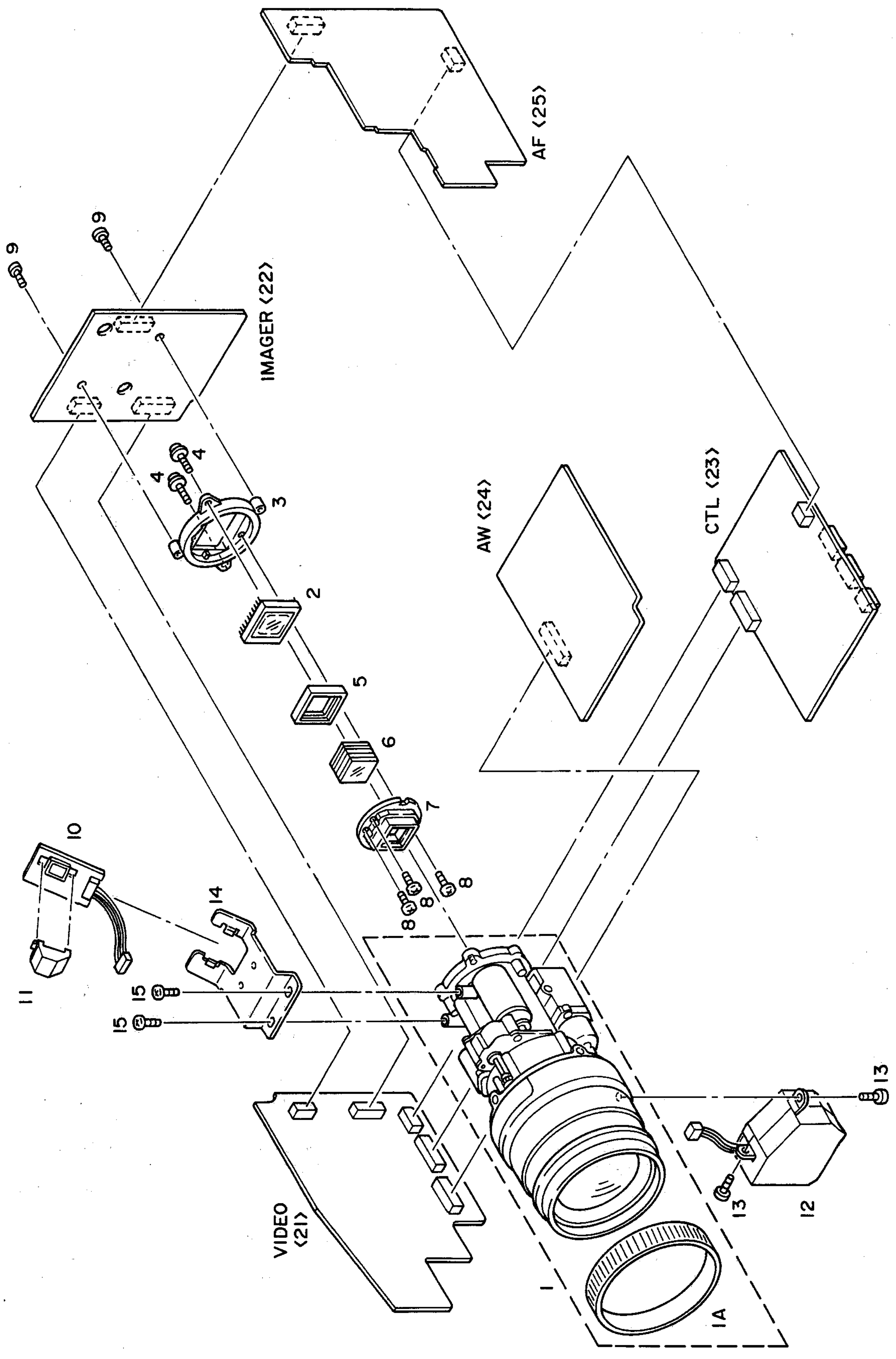
NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

****

MECHANISM ASSEMBLY <M3>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	YQ10172A-22	MAIN DECK ASSY
1A	YQ41500-1-1	GUIDE PIN(S)
1B	YQ41501-1-3	GUIDE PIN(T)
1C	YQ41621-1-2	CANCEL PLATE
1D	YQ41622-1-1	COLLAR
1E	SPSH1725M	SCREW
1F	YQM30001-49-12	TENSION SPRING
1G	SPSH1725M	SCREW
1H	YQ41867	SUPPORT PLATE
1J	SPSH1720M	SCREW
1K	YQ41814-1-2	DECK SUPPORT
1L	SPSK1725	SCREW,X4
2	YQ20294-1-3	CONTROL CAM GEAR
3	PQM30017-25	SLIT WASHER
4	YQ41796	LOADING GEAR 2
5	PQM30017-27	SLIT WASHER
	or YQM30017-1	SLIT WASHER
6	YQ41503-1-2	DRIVE GEAR
7	YQ41742-1-2	LOADING GUIDE,X7
8	YQ41506B	LOADING RING ASSY
9	YQ41797	SUPPLY MIDDLE GEAR
10	PQM30017-27	SLIT WASHER,X4
11	YQ41511B	SUPPLY LOADING GEAR ASSY
12	PQM30017-27	SLIT WASHER
13	YQ30640	MIDDLE POLE CAM GEAR
⚠ 14	YU41403T-1	MODE CONTROL MOTOR ASSY
15	SPSH1710M	SCREW,X2
⚠ 16	YU41404V-4	CAPSTAN MOTOR ASSY
17	SPSH1725M	SCREW,X3
18	YQ41517A-5	MIDDLE POLE ARM ASSY
19	YQ41524A-3	SUB DECK ASSY
20	SPSH1760M	SCREW,X2
21	SPSK1720M	MINI SCREW
22	YQ41930A-2	A/C HEAD FINAL ASSY
22A	YU41719	DEW SENSER
23	SPSH1720M	SCREW,X2
24	YQ30642-1-7	CASSETTE BLOCK
25	SPSH1735M	SCREW
26	SPSH1720M	SCREW,X2
28	YQ41534A-2	MIDDLE POLE CATCHER
29	SPSH1735M	SCREW
30	SSSH1730M	SCREW
31	YQ41535A	SUPPLY SLANT POLE ASSY
32	SPSH1735M	SCREW
33	YQ30606A-3	PINCH ROLLER ARM ASSY
34	YQ41544A	SPRING PLATE ASSY
34A	YQ41551	TENSION SPRING
35	YQ41552A-4	GUIDE PLATE ASSY
36	SPSH1425M	SCREW,X2
37	YQM30032-21	SPECIAL SCREW,M1.7X3
38	YU41444-1-3	TU.P.BASE AS
39	YU41445-2-2	S.P.BASE AS
40	YU41406-1-2	CENTER GEAR ASSY
41	SPSH1725M	SCREW,X2
42	YQ41558	TIMING BELT
43	YU41407	CAM SW ASSY
44	PQM30017-22	SLIT WASHER
45	YQ41559	ENCODER GEAR(1)
46	YQ41560	ENCODER GEAR(2)
47	PQM30017-27	SLIT WASHER
	or YQM30017-1	SLIT WASHER
48	YU41408-1-2	SUPPLY REEL DISK ASSY
49	PQM30017-27	SLIT WASHER
50	Q03093-835	WASHER
51	YU41459-1-2	TAKE-UP CLUTCH ASSY
52	PQM30017-27	SLIT WASHER
53	Q03093-835	WASHER
54	YQ41562	TAKE-UP GEAR
55	PQM30017-27	SLIT WASHER
57	YQ41963	TENSION SPRING
58	PQM30017-27	SLIT WASHER
59	YQ41628A	SEARCH BRAKE ASSY
59A	YQ41551-2	TENSION SPRING
60	PQM30017-27	SLIT WASHER
61	YQ41756-1-4	BRAKE DRIVE LEVER
62	YQ41625	TENSION SPRING
63	YQ41585A-5	IMPEDANCE ROLLER ARM ASSY
63A	YQ41586A	IMPEDANCE ROLLER ARM SUB ASSY
63B	YQ41588A-3	IMPEDANCE ROLLER ASSY
63C	Q03093-835	WASHER
63D	PQM30017-27	SLIT WASHER
63E	YQ41664	TORSION SPRING
64	YQ41591	CANCEL LEVER
65	PQM30017-27	SLIT WASHER
66	YDM2046-2-5	SUP GUIDE RAIL
67	SPSH1735M	SCREW,X2
68	YU41447-1-2	BRUSH
69	SPSH1735M	SCREW
70	YQ30615-1-2	LED GUIDE
71	SPSH1720M	SCREW
72	SPSH1735M	SCREW
73	SPSK1735M	SCREW,X2
74	SPSH1725M	SCREW
77	SPSK1420M	SCREW
78	YQ30830A	SHIELD CASE ASSY
79	YU41387-2	FPC 2
80	YU41821	SHIELD PLATE
91	YQ41920	SHIELD COVER
95	YQ41563B-4	TENSION ARM ASSY
96	PQM30017-27	SLIT WASHER
97	YQ41577A-7	SLIDE PLATE SA
98	PQM30017-27	SLIT WASHER,X2
99	YQ42009	SPECIAL SCREW,X2 M1.2X1.5
100	YDV2023A	DRUM ASSY
100A	YDM2040A	UPPER DRUM ASSY
100B	YDM4031	SCREW,X2
100C	YDM2042A	LOWER DRUM MOTOR ASSY
100D	YDM2044-1-7	UV BASE
100E	SPSK1730M	SCREW,X2
100F	YDM4073	DRUM SPACER
100G	SPSK1730M	SCREW
100H	YDM2045-1-4	TU GUIDE RAIL
100J	SPSH1725M	SCREW,X2
100K	YDM2046-1-5	SUP GUIDE RAIL
100L	SPSH1725M	SCREW,X2
200	YMA0002A	MECHANISM ASSY(B)

6.4 OPTICAL BLOCK ASSEMBLY < M4 >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VIDEO <21>
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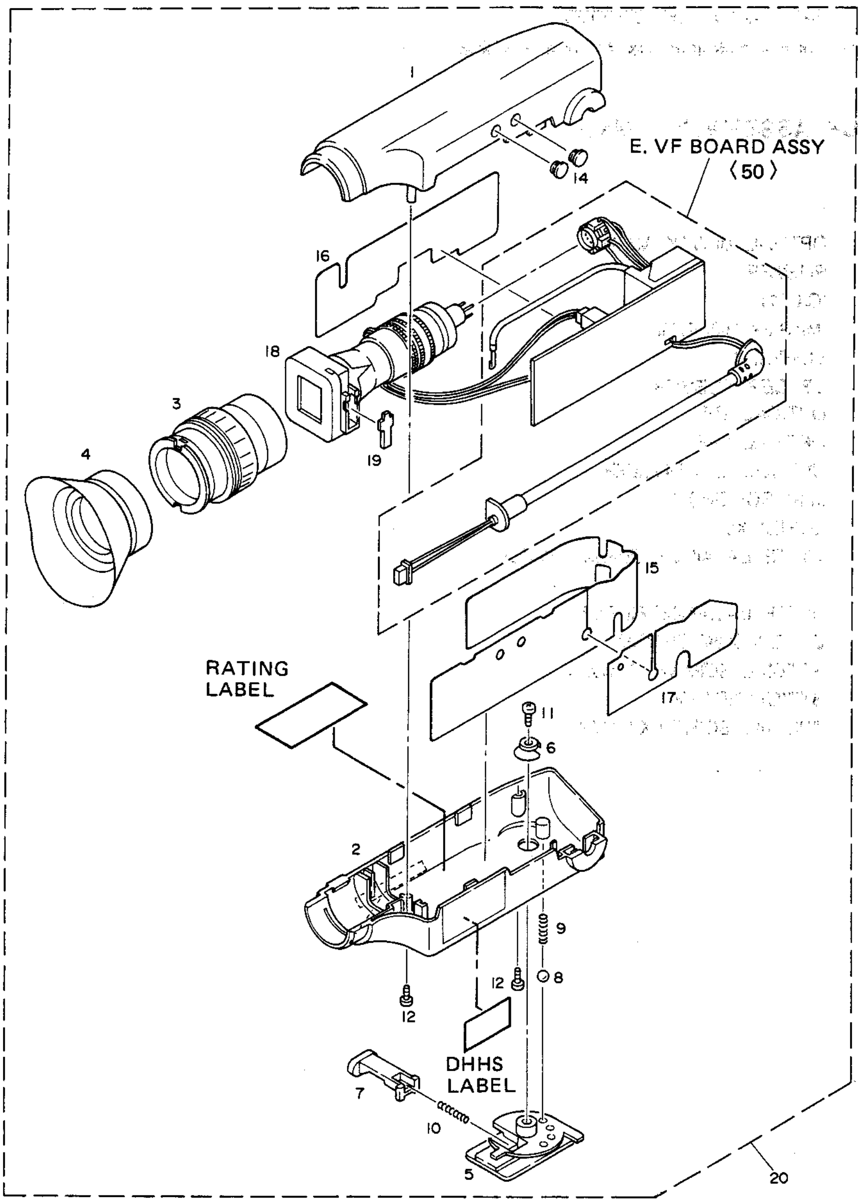
1A

OPTICAL BLOCK ASSEMBLY <M4>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	1	YU30366-1-1	OPTICAL BLOCK ASSY
	1A	YU30366-001	RUBBER
⚠	2	ICX038AK-6	IC(CCD)
	3	YQ30598-1-2	IMAGER HOLDER
	4	DPSP2009Z	SCREW,X2
	5	PQ42339	SPACER RUBBER
	6	PEDP0025	OPTICAL LPF
		or PEDP0025-B	OPTICAL LPF
	7	YQ30096-2	OPTICAL LPF HOLDER
	8	SPSK2004F	MINI SCREW,X3
	9	SPSP2004Z	SCREW,X2
	10	YU41650	WHITE BALANCE SENSOR MODULE
	11	YQ41799	WHITE BALANCE FILTER
	12	YU41633-2	DC DC CONVERTOR
	13	YQM30032-11-2	SPECIAL SCREW,X2 M2X4
	14	YQ41812	BKT(OP UPPER)
	15	YQM30032-4-2	SPECIAL SCREW,X2 M2X6

6.5 ELECTRICAL VIEW FINDER ASSEMBLY < M5 >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14
E. VF BOARD ASSY
(50)
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RATING LABEL
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12
DHHS LABEL
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ELECTRICAL VIEWFINDER ASSEMBLY <M5>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	1	YQ30723-001	TOP CASE
⚠	2	YQ30723-006	BOTTOM CASE
	3	YQ30723-011	LENS ASSY
	4	YQ30723-012	EYE CAP
	5	YQ30723-014	SHOE
	6	YQ03723-015	SHOE COVER
	7	YQ30723-016	LEVER
	8	YQ30723-017	STEEL BALL
	9	YQ30723-018	SPRING
	10	YQ30723-019	SPRING
	11	YQ30723-020	SCREW
	12	YU30045-014	SCREW,X2
	14	YU30045-024	CAP
	15	YQ30723-021	INSULATORL
	16	YQ30723-013	INSULATOR
	17	YQ30723-022	SHIELD
	18	YQ30723-023	CRT/DY ASSY
⚠	19	YU30181-014	HIGH VOLTAGE COVER
⚠	20	YQ30723B	ELECTRONIC VIEW FINDER ASSY

SECTION 7
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTES:
- [M] indicates mechanical symbol number.
- [2 digits] indicates circuit board symbol number.
- "X " indicates quantity per set.

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MAIN BOARD ASSEMBLY <01>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	YB10062A-04	MAIN BOARD ASSY
IC101	JCY0001A2	IC
	or JCY0001A1	IC
IC102	JCY0002A1	IC
IC104	M56780VP	IC
IC105	BA7043FS	IC
IC251	VC5035	IC
IC252	LB1617M-J	IC
IC301	M37414M5-101FP	IC(CPU)
IC302	S-87050AF	IC
IC304	TC4S584F	IC
IC305	TC4S584F	IC
IC306	M54543AFP	IC
Q1	UN9213	TRANSISTOR
	or DTC144EE	TRANSISTOR
Q101	UN9213	TRANSISTOR
	or DTC144EE	TRANSISTOR
Q102	UN9214	TRANSISTOR
	or DTC114EE	TRANSISTOR
Q103	UN9213	TRANSISTOR
	or DTC144EE	TRANSISTOR
Q104	XP4601	TRANSISTOR
	or UMZ1	TRANSISTOR
Q106	UMZ1	TRANSISTOR
	or XP4601	TRANSISTOR
Q110	2SA1576(RS)	TRANSISTOR
Q111	2SD2216(RS)	TRANSISTOR
	or 2SC4617(RS)	TRANSISTOR
Q112	UN9113	TRANSISTOR
	or DTA144EE	TRANSISTOR
Q113	UN9113	TRANSISTOR
	or DTA144EE	TRANSISTOR
Q114	2SD2216(RS)	TRANSISTOR
	or 2SC4617(RS)	TRANSISTOR
Q115	2SD2216(RS)	TRANSISTOR
	or 2SC4617(RS)	TRANSISTOR
Q117	UN9213	TRANSISTOR
	or DTC144EE	TRANSISTOR
Q118	2SD2216(RS)	TRANSISTOR
	or 2SC4617(RS)	TRANSISTOR
Q120	UN9113	TRANSISTOR
	or DTA144EE	TRANSISTOR
Q121	2SA1576(RS)	TRANSISTOR
Q122	UN9213	TRANSISTOR
	or DTC144EE	TRANSISTOR
Q123	UMG2	TRANSISTOR
	or XP1213	TRANSISTOR
Q124	UMG2	TRANSISTOR
	or XP1213	TRANSISTOR
Q251	2SA1576(RS)	TRANSISTOR
Q252	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q301	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q302	2SA1774(QRS)	TRANSISTOR
	or 2SB1462(RS)	TRANSISTOR
Q303	DTC124EE	TRANSISTOR
Q305	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q306	2SC4617(QRS)	TRANSISTOR
	or 2SD2216(RS)	TRANSISTOR
Q307	2SA1774(QRS)	TRANSISTOR
	or 2SB1462(RS)	TRANSISTOR
Q308	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q309	2SA1774(QRS)	TRANSISTOR
	or 2SB1462(RS)	TRANSISTOR
Q310	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q313	DTC144EE	TRANSISTOR
	or UN9213	TRANSISTOR
Q601	2SA1577(QR)	TRANSISTOR
Q602	2SC4617(RS)	TRANSISTOR
Q603	2SC4617(RS)	TRANSISTOR
Q604	2SC4617(RS)	TRANSISTOR
D101	MA132WK	DIODE
	or DAN222	DIODE
D102	RB451F	DIODE
D103	MA132WK	DIODE
	or DAN222	DIODE
D104	MA132WA	DIODE
D105	DAN222	DIODE
D111	RD6.8M(B1-3)	ZENER DIODE
D112	RD6.8M(B1-3)	ZENER DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D251	DAN222	DIODE	
D252	MA141WK	DIODE	
D301	DAN222	DIODE	
	or MA132WK	DIODE	
D302	DAN222	DIODE	
	or MA132WK	DIODE	
D304	SIM-125ST-W	LED	
D306	DTZ6.8	ZENER DIODE	
D307	DAN222	DIODE	
	or MA132WK	DIODE	
D309	MA132WA	DIODE	
D310	MA132WA	DIODE	
D311	RD6.8M(B1-3)	ZENER DIODE	
D312	RD6.8M(B1-3)	ZENER DIODE	
R101	NRSC2AJ-561AW	RESISTOR	560Ω
R102	NRSC2AJ-561AW	RESISTOR	560Ω
R103	NVP1201-474N	V RESISTOR,PB SWITCHING POINT	470KΩ,1/2W
R104	NRSA63J-124N	RESISTOR	120KΩ,1/16W
R107	NRSC2AJ-102AW	RESISTOR	1KΩ
R108	NRSC2AJ-102AW	RESISTOR	1KΩ
R112	NRSC2AJ-0R0AW	RESISTOR	0Ω
R113	NRSC2AJ-561AW	RESISTOR	560Ω
R114	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R115	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R116	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R117	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R120	NRVA62D-103N	RESISTOR	10KΩ,1/16W
R121	NRVA62D-123N	RESISTOR	12KΩ,1/16W
R122	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R123	NRVA62D-223N	RESISTOR	22KΩ,1/16W
R124	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R125	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R126	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R127	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R128	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R129	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R130	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R131	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R132	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R133	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R135	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R140	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R141	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R142	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R143	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R144	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R145	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R146	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R147	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R148	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R149	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R151	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R160	NRSA63J-913N	RESISTOR	91KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R161	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R162	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R163	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R164	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R165	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R166	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R170	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R172	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R173	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R174	NRSA63J-274N	RESISTOR	270KΩ,1/16W
R175	NRSA63J-684N	RESISTOR	680KΩ,1/16W
R176	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R177	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R180	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R181	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R182	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R183	NRSA63J-390N	RESISTOR	39Ω,1/16W
R185	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R188	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R190	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R191	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R192	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R193	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R196	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R198	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R199	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R200	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R203	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R204	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R205	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R206	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R207	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R208	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R251	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R252	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R253	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R254	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R255	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R257	NRSA63J-121N	RESISTOR	120Ω,1/16W
R258	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R261	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R262	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R263	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R264	YU41353-R68NZ	RESISTOR	
R276	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R277	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R278	NRSA63J-241N	RESISTOR	240Ω,1/16W
R279	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R280	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R281	NRSA63K-2R2N	RESISTOR	2.2Ω,1/16W
R282	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R283	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R301	NRSC2AJ-473AW	RESISTOR	47KΩ

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R302	NRSC2AJ-104AW	RESISTOR	100KΩ
R303	NRSC2AJ-473AW	RESISTOR	47KΩ
R304	NRSC2AJ-472AW	RESISTOR	4.7KΩ
R305	NRSC2AJ-103AW	RESISTOR	10KΩ
R306	NRSC2AJ-472AW	RESISTOR	4.7KΩ
R308	NRSC2AJ-105AW	RESISTOR	1MΩ
R309	NRSC2AJ-102AW	RESISTOR	1KΩ
R310	NRSC2AJ-473AW	RESISTOR	47KΩ
R311	NRSC2AJ-102AW	RESISTOR	1KΩ
R312	NRSC2AJ-102AW	RESISTOR	1KΩ
R313	NRSC2AJ-103AW	RESISTOR	10KΩ
R314	NRSC2AJ-153AW	RESISTOR	15KΩ
R315	NRSC2AJ-472AW	RESISTOR	4.7KΩ
R316	NRSC2AJ-472AW	RESISTOR	4.7KΩ
R317	NRSC2AJ-104AW	RESISTOR	100KΩ
R318	NRSC2AJ-103AW	RESISTOR	10KΩ
R321	NRSC2AJ-0R0AW	RESISTOR	0Ω
R322	NRSC2AJ-102AW	RESISTOR	1KΩ
R323	NRVA62D-563N	RESISTOR	56KΩ,1/16W
R324	NRVA62D-203N	RESISTOR	20KΩ,1/16W
R325	NRVA62D-683N	RESISTOR	68KΩ,1/16W
R326	QRSA08J-0R0YN	RESISTOR	0Ω,1/10W
R327	NRSC2AJ-473AW	RESISTOR	47KΩ
R328	NRSC2AJ-102AW	RESISTOR	1KΩ
R332	NRSC2AJ-473AW	RESISTOR	47KΩ
R333	NRSC2AJ-153AW	RESISTOR	15KΩ
R334	NRSC2AJ-153AW	RESISTOR	15KΩ
R335	NRSC2AJ-473AW	RESISTOR	47KΩ
R336	NRSC2AJ-473AW	RESISTOR	47KΩ
R337	NRSC2AJ-473AW	RESISTOR	47KΩ
R338	NRSC2AJ-103AW	RESISTOR	10KΩ
R339	NRSC2AJ-105AW	RESISTOR	1MΩ
R340	NRSC2AJ-153AW	RESISTOR	15KΩ
R341	NRSC2AJ-105AW	RESISTOR	1MΩ
R342	NRSC2AJ-222AW	RESISTOR	2.2KΩ
R343	NRSC2AJ-105AW	RESISTOR	1MΩ
R344	NRSC2AJ-103AW	RESISTOR	10KΩ
R345	NRSC2AJ-472AW	RESISTOR	4.7KΩ
R346	NRSC2AJ-472AW	RESISTOR	4.7KΩ
R347	NRSC2AJ-333AW	RESISTOR	33KΩ
R348	NRSC2AJ-273AW	RESISTOR	27KΩ
R349	NRSC2AJ-102AW	RESISTOR	1KΩ
R350	NRSC2AJ-102AW	RESISTOR	1KΩ
R351	NRSA63J-181N	RESISTOR	180Ω,1/16W
R352	NRSC2AJ-102AW	RESISTOR	1KΩ
R357	NRSC2AJ-153AW	RESISTOR	15KΩ
R358	NRSC2AJ-102AW	RESISTOR	1KΩ
R366	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R367	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R368	NRSC2AJ-103AW	RESISTOR	10KΩ
R369	NRSC2AJ-472AW	RESISTOR	4.7KΩ
R370	NRSC2AJ-472AW	RESISTOR	4.7KΩ
R371	NRSC2AJ-102AW	RESISTOR	1KΩ
R373	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R394	NRSC2AJ-105AW	RESISTOR	1MΩ

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R395	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R396	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R397	NRSC2AJ-104AW	RESISTOR	100KΩ
R601	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R602	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R603	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R604	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R605	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R606	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R607	NRSA63K-5R6N	RESISTOR	5.6Ω,1/16W
R608	NRSA63K-5R6N	RESISTOR	5.6Ω,1/16W
RA101	YU40172-332N	NETWORK RESISTOR	
RA102	YU40172-332N	NETWORK RESISTOR	
RA103	YU40172-102N	NETWORK RESISTOR	
RA104	YU40172-102N	NETWORK RESISTOR	
C1	NEE21DM-475RS	TANTAL CAPACITOR	4.7μF,20V
C2	NEE21DM-475RS	TANTAL CAPACITOR	4.7μF,20V
C3	NEE21DM-475RS	TANTAL CAPACITOR	4.7μF,20V
C4	NEE21DM-475RS	TANTAL CAPACITOR	4.7μF,20V
C5	NEE21DM-475RS	TANTAL CAPACITOR	4.7μF,20V
C7	NEE21DM-475RS	TANTAL CAPACITOR	4.7μF,20V
C101	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C102	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C103	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C105	NCB31HK-102A	CAPACITOR	0.001μF,50V
C106	NCB31HK-392A	CAPACITOR	0.0039μF,50V
C110	NCB31EK-103A	CAPACITOR	0.01μF,25V
C111	QCY81EK-104	CAPACITOR	0.1μF,25V
C112	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C113	NCB31EK-223A	CAPACITOR	0.022μF,25V
C114	NCB31HK-102A	CAPACITOR	0.001μF,50V
C115	NCB31HK-102A	CAPACITOR	0.001μF,50V
C116	NEN11EM-226NZ	E CAPACITOR	22μF,25V
C117	QCFA1CZ-105	CAPACITOR	1μF,16V
C120	NCB31EK-223A	CAPACITOR	0.022μF,25V
C121	QCY81CK-224	CAPACITOR	0.22μF,16V
C122	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C123	NCB31EK-223A	CAPACITOR	0.022μF,25V
C124	NCB31HK-102A	CAPACITOR	0.001μF,50V
C125	NCB31HK-102A	CAPACITOR	0.001μF,50V
C126	NEN10JM-106NZ	E CAPACITOR	10μF,6.3V
C127	QCFA1CZ-105	CAPACITOR	1μF,16V
C128	QCFA1CZ-105	CAPACITOR	1μF,16V
C130	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C131	NCS31HJ-100A	CAPACITOR	10PF,50V
C134	NCB31HK-102A	CAPACITOR	0.001μF,50V
C135	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C136	NCT06CH-101A	CAPACITOR	100PF
C138	NCB31HK-562A	CAPACITOR	0.0056μF,50V
C139	QCFA1CZ-105	CAPACITOR	1μF,16V
C140	QCFA1CZ-105	CAPACITOR	1μF,16V
C145	NCB31EK-103A	CAPACITOR	0.01μF,25V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C147	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C148	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C149	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C150	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C151	NCR21CK-473A	CAPACITOR	0.047μF,16V
	C152	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C153	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C154	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C155	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C156	QCYA1EK-223	CAPACITOR	0.022μF,25V
	C160	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C161	NCT06CH-101A	CAPACITOR	100PF
	C162	NCB31HK-822A	CAPACITOR	0.0082μF,50V
	C175	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C176	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C177	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C178	NCB31HK-332A	CAPACITOR	0.0033μF,50V
	C179	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C251	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C252	NEE41DM-474RS	TANTAL CAPACITOR	0.47μF,20V
	C253	NCB31HK-331A	CAPACITOR	330PF,50V
	C255	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C257	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C258	QCY81EK-104	CAPACITOR	0.1μF,25V
	C259	QCF81CZ-105	CAPACITOR	1μF,16V
	C260	QCF81CZ-105	CAPACITOR	1μF,16V
	C261	QCF81CZ-105	CAPACITOR	1μF,16V
	C265	NCR21CK-473A	CAPACITOR	0.047μF,16V
	C266	NEE41AM-105RS	TANTAL CAPACITOR	1μF,10V
	C267	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C268	NCB31HK-681A	CAPACITOR	680PF,50V
	C269	NCB31HK-332A	CAPACITOR	0.0033μF,50V
	C276	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C277	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C278	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C279	QCF81CZ-105	CAPACITOR	1μF,16V
	C280	QCF81CZ-105	CAPACITOR	1μF,16V
	C281	QCF81CZ-105	CAPACITOR	1μF,16V
	C282	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C283	QCF81CZ-105	CAPACITOR	1μF,16V
	C301	NEE21CM-685RS	TANTAL CAPACITOR	6.8μF,16V
	C302	YU40688-476N	E CAPACITOR	47μF
	C303	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C304	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C305	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C306	NCB31HK-472A	CAPACITOR	0.0047μF,50V
	C307	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C308	NCS31HJ-471A	CAPACITOR	470PF,50V
	C309	NCB31HK-103A	CAPACITOR	0.01μF,50V
	C311	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C312	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C313	NCS31HJ-220A	CAPACITOR	22PF,50V
	C314	NCS31HJ-220A	CAPACITOR	22PF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C315	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C316	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C601	QCTA1CH-5R0	CAPACITOR	5PF,16V
	C602	QCFA1EZ-104	CAPACITOR	0.1μF,25V
	C603	QCTA1CH-181	CAPACITOR	180PF,16V
	C604	QCTA1CH-181	CAPACITOR	180PF,16V
	C605	QCTA1CH-271	CAPACITOR	270PF,16V
	C606	QCTA1CH-101	CAPACITOR	100PF,16V
	L101	PU58201-270J	COIL	27μH
	L601	YU41135-470	COIL	47μH
	L602	YU41134-1R2MY	COIL	1.2μH
⚠	L603	YU41368-P	OSC COIL	
	TRAP1	YU41366-Z	BEF,FT101	
	TRAP2	YU41364-Z	BEF,FT102	
⚠	X301	YU41379-R	CRYSTAL RESONATOR	
	SW301	YU41393-R	PUSH SWITCH,S301	
	DD1	YU41369-2	DC-DC CONVERTER	
	SLD1	YQ30746-1-2	SHIELD PLATE	
	SLD2	YU30524	SHIELD PLATE	
	SLD3	YQ41940	EARTH PLATE	
	SLD4	YU41753	SHIELD PLATE	
	SLD5	YU41782	SHEET	
	SLD6	YQ30675-1-1	SHIELD COVER	
	SLD7	YU41811	SHIELD PLATE	
	SLD8	YU41812-1-1	SHIELD PLATE	
	SPC1	YQM30029-41	SPACER	
	TP1	YU40581	TEST PIN,GND	
	TP2	YU40581	TEST PIN,REG 8V	
	TP3	YU40581	TEST PIN,REG 5V	
	TP101	YU41389-AY	TEST PIN,PB CTL PULSE	
	TP102	YU41389-AY	TEST PIN,CAP FG	
	TP103	YU41389-AY	TEST PIN,AVG FM	
	TP104	YU41389-AY	TEST PIN,CAP MON	
	TP105	YU41389-AY	TEST PIN,DRUM MON	
	TP106	YU41389-AY	TEST PIN,DRUM PG/FG	
	TP107	YU41389-AY	TEST PIN,DRUM FG	
	TP108	YU41389-AY	TEST PIN,DRUM PG	
	CN1	YU41355-15	CAP HOUSING	
	CN2	YU41355-13	CAP HOUSING	
	CN3	YU41355-15	CAP HOUSING	
	CN4	YU41356-3	CAP HOUSING	
	CN6	YU41356-3	CAP HOUSING	
	CN7	YU41355-8	CAP HOUSING	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
CN8	YU41355-8	CAP HOUSING	
CN9	YU41358-30	CAP HOUSING,(BOARD TO BOARD)	
CN10	YU41361-16	CAP HOUSING,(BOARD TO BOARD)	
CN11	YU41356-6	CAP HOUSING	
CN12	YU41355-3	CAP HOUSING	
CN14	YU41358-6	CAP HOUSING,(BOARD TO BOARD)	
CN15	YU41356-4	CAP HOUSING	
⚠ CP1	ICP-F20	CIRCUIT PROTECTOR	

- OPE AMP BOARD ASSEMBLY -

PWBA1	YB20377A-01	OPE AMP BOARD ASSY	
IC106	BA10358F	IC	
	or XRA10358F	IC	
R155	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R156	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
R157	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
R158	QRSA08J-334YN	RESISTOR	330KΩ,1/10W
R319	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R382	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
R383	QRSA08J-124YN	RESISTOR	120KΩ,1/10W
R384	QRSA08J-102	RESISTOR	1KΩ,1/10W
R385	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
C141	QCYA1HK-103	CAPACITOR	0.01μF,50V
C142	QCYA1EK-104	CAPACITOR	0.1μF,25V

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A/V BOARD ASSEMBLY <02>

PWBA	YB10063A-03-C2	A/V BOARD ASSY
IC1	M51469HP	IC
IC2	M52084FP	IC
IC3	BX7771F	IC
IC4	5VT52	IC
IC5	H8B7177	IC
IC6	18VT51	IC
IC301	BA7751AFS	IC
IC501	BA7706KS	IC
IC502	M5218FP	IC

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
Q1	2SA1577(PQR)	TRANSISTOR
Q2	2SB624-T1BBV4	TRANSISTOR
	or 2SB624-T1BBV5	TRANSISTOR
Q3	2SA1577(PQR)	TRANSISTOR
Q4	2SA1577(PQR)	TRANSISTOR
Q5	2SA1577(PQR)	TRANSISTOR
Q6	2SA1577(PQR)	TRANSISTOR
Q7	DTC144EE	TRANSISTOR
Q8	DTA144EE	TRANSISTOR
Q9	DTC144EE	TRANSISTOR
Q10	DTC144EE	TRANSISTOR
Q11	DTA144EE	TRANSISTOR
Q12	DTA144EE	TRANSISTOR
Q14	DTC144EE	TRANSISTOR
Q15	DTC124EE	TRANSISTOR
Q16	DTC144EE	TRANSISTOR
Q17	DTA144EE	TRANSISTOR
Q18	DTC144EE	TRANSISTOR
Q19	UMW1	TRANSISTOR
Q20	DTA144EE	TRANSISTOR
Q21	DTA144EE	TRANSISTOR
Q22	DTC144EE	TRANSISTOR
Q24	DTC144EU	TRANSISTOR
Q25	DTC144EU	TRANSISTOR
Q27	DTC144EE	TRANSISTOR
Q28	DTC144EE	TRANSISTOR
Q29	DTC144EE	TRANSISTOR
Q30	2SC4617(RS)	TRANSISTOR
Q31	DTC144EE	TRANSISTOR
Q32	2SA1774(RS)	TRANSISTOR
	or 2SB1462(RS)	TRANSISTOR
Q33	2SC4617(RS)	TRANSISTOR
	or 2SD2216(RS)	TRANSISTOR
Q34	DTC144EE	TRANSISTOR
Q35	DTC144EE	TRANSISTOR
Q36	UMH2	TRANSISTOR
Q37	2SC4617(RS)	TRANSISTOR
	or 2SD2216(RS)	TRANSISTOR
Q38	DTC144EE	TRANSISTOR
Q39	DTC144EE	TRANSISTOR
Q40	DTC144EE	TRANSISTOR
Q41	2SA1774(RS)	TRANSISTOR
Q42	DTC144EE	TRANSISTOR
Q44	DTC144EE	TRANSISTOR
Q45	DTC144EE	TRANSISTOR
Q46	UMG2	TRANSISTOR
Q47	2SA1774(RS)	TRANSISTOR
	or 2SB1462(RS)	TRANSISTOR
Q48	2SB1462(RS)	TRANSISTOR
Q49	DTC144EE	TRANSISTOR
Q50	DTC144EE	TRANSISTOR
Q52	DTC144EE	TRANSISTOR
Q56	DTC144EE	TRANSISTOR
Q58	2SA1774(RS)	TRANSISTOR
	or 2SB1462(RS)	TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q62	FMU1	TRANSISTOR	
Q63	2SC4617(RS)	TRANSISTOR	
	or 2SD2216(RS)	TRANSISTOR	
Q64	DTC144EE	TRANSISTOR	
Q302	DTA143EE	TRANSISTOR	
Q303	UMW1	TRANSISTOR	
Q305	2SC4097(QR)	TRANSISTOR	
Q306	DTA143EE	TRANSISTOR	
Q307	DTC144EE	TRANSISTOR	
Q308	DTA143EE	TRANSISTOR	
Q309	UMG2	TRANSISTOR	
Q311	DTA124EE	TRANSISTOR	
Q401	2SC4617(QRS)	TRANSISTOR	
Q402	2SC4617(QRS)	TRANSISTOR	
Q403	2SC4617(QRS)	TRANSISTOR	
Q404	2SC4617(QRS)	TRANSISTOR	
Q501	DTC144EE	TRANSISTOR	
Q502	2SA1774(QRS)	TRANSISTOR	
Q503	2SA1774(QRS)	TRANSISTOR	
Q504	2SC4617(RS)	TRANSISTOR	
Q505	2SC4617(RS)	TRANSISTOR	
Q506	DTC144EE	TRANSISTOR	
Q507	DTC144EE	TRANSISTOR	
Q508	2SC4617(RS)	TRANSISTOR	
Q900	2SA1774(RS)	TRANSISTOR	
	or 2SB1462(RS)	TRANSISTOR	
D1	DAP202U	DIODE	
D2	DAP202U	DIODE	
D3	MA132WA	DIODE	
D5	MA132WA	DIODE	
D6	DAN222	DIODE	
D8	MA132WA	DIODE	
D9	DAN222	DIODE	
D10	DAN222	DIODE	
D11	MA132WA	DIODE	
D12	MA132WA	DIODE	
D13	MA132WA	DIODE	
D14	MA132WA	DIODE	
D15	DAN222	DIODE	
D16	DAN222	DIODE	
D17	DAN222	DIODE	
D18	MA132WA	DIODE	
D19	DAN222	DIODE	
D28	DA221	DIODE	
D29	DA221	DIODE	
D31	DAN222	DIODE	
R1	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R2	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R3	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R4	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R5	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R6	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R7	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R8	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R9	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R10	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R11	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R12	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R13	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R14	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R15	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R16	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R17	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R18	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R20	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R21	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R22	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R23	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R24	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R25	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R26	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R27	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R28	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R29	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R30	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R31	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R32	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R33	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R34	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R35	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R36	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R37	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R38	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R39	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R40	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R41	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R42	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R43	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R44	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R45	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R46	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R47	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R48	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R49	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R50	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R51	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R52	NRSA63J-271N	RESISTOR	270Ω,1/16W
R53	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R54	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R55	NRSA63J-221N	RESISTOR	220Ω,1/16W
R56	NRSA63J-330N	RESISTOR	33Ω,1/16W
R61	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
R62	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R63	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R64	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R65	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R66	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R67	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R68	NRSA63J-561N	RESISTOR	560Ω,1/16W
R69	NRSA63J-125N	RESISTOR	1.2MΩ,1/16W
R70	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R71	NRSA63J-561N	RESISTOR	560Ω,1/16W
R72	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R73	NRSA63J-750N	RESISTOR	75Ω,1/16W
R74	NRSA63J-131N	RESISTOR	130Ω,1/16W
R75	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R76	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R77	NRSA63J-471N	RESISTOR	470Ω,1/16W
R78	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R79	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R81	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R82	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R83	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R84	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
R85	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R86	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R87	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R88	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R89	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R90	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R91	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R92	NRSA63J-271N	RESISTOR	270Ω,1/16W
R93	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R95	NRSA63J-202N	RESISTOR	2KΩ,1/16W
R96	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R97	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
R98	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R101	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R103	NRSA63J-622N	RESISTOR	6.2KΩ,1/16W
R104	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R105	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R106	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R107	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R108	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R109	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R110	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R111	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R113	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R114	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R115	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R116	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R119	QRSA08J-102	RESISTOR	1KΩ,1/10W
R120	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R121	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R122	NRSA63J-181N	RESISTOR	180Ω,1/16W
R123	NRSA63J-821N	RESISTOR	820Ω,1/16W
R124	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R126	NRSA63J-221N	RESISTOR	220Ω,1/16W
R127	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R128	NRSA63J-391N	RESISTOR	390Ω,1/16W
R130	NRSA63J-103N	RESISTOR	10KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R131	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R135	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R136	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R141	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R146	NRSA63J-221N	RESISTOR	220Ω,1/16W
R147	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R155	NRSA63J-471N	RESISTOR	470Ω,1/16W
R156	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R157	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R158	NRSA63J-681N	RESISTOR	680Ω,1/16W
R159	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
R165	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R166	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R201	NVP1201-102N	V RESISTOR,PB COLOR LEVEL	1KΩ,1/2W
R202	NVP1201-223N	V RESISTOR,320 FH VCO	22KΩ,1/2W
R203	NVP1201-222N	V RESISTOR,PB BURST LEVEL	2.2KΩ,1/2W
R204	NVP1201-681N	V RESISTOR,N DARK CLIP	680Ω,1/2W
R205	NVP1201-682N	V RESISTOR,S DARK CLIP	6.8KΩ,1/2W
R206	NVP1201-332N	V RESISTOR,S WHITE CLIP	3.3KΩ,1/2W
R207	NVP1201-103N	V RESISTOR,N WHITE CLIP	10KΩ,1/2W
R208	NVP1201-472N	V RESISTOR,S DEVIATION	4.7KΩ,1/2W
R209	NVP1201-472N	V RESISTOR,N DEVIATION	4.7KΩ,1/2W
R210	NVP1201-153N	V RESISTORR,S CARRIER	15KΩ,1/2W
R211	NVP1201-223N	V RESISTOR,N CARRIER	22KΩ,1/2W
R212	NVP1201-472N	V RESISTOR,EE Y LEVEL	4.7KΩ,1/2W
R213	NVP1201-102N	V RESISTOR,SUB EMPHA INPUT LEV	1KΩ,1/2W
R214	NVP1201-681N	V RESISTOR,YNR INPUT LEVEL	680Ω,1/2W
R215	NVP1201-472N	V RESISTOR,S PB Y LEVEL	4.7KΩ,1/2W
R216	MVP1201-472N	V RESISTOR,N PB Y LEVEL	4.7KΩ,1/2W
R217	NVP1201-681N	V RESISTOR,S REC FM LEVEL	680Ω,1/2W
R218	NVP1201-681N	V RESISTOR,N REC FM LEVEL	680Ω,1/2W
R219	NVP1201-222N	V RESISTOR,S SP VIDEO EQ	2.2KΩ,1/2W
R220	NVP1201-332N	V RESISTOR,S EP VIDEO EQ	3.3KΩ,1/2W
R221	NVP1201-222N	V RESISTOR,N VIDEO EQ	2.2KΩ,1/2W
R222	NVP1201-101N	V RESISTOR,S REC COLOR LEVEL	100Ω,1/2W
R223	NVP1201-331N	V RESISTOR,N REC COLOR LEVEL	330Ω,1/2W
R224	NVP1201-681N	V RESISTOR,EE BURST LEVEL	680Ω,1/2W
R301	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R302	NRSA63J-470N	RESISTOR	47Ω,1/16W
R303	NRSA63J-471N	RESISTOR	470Ω,1/16W
R304	NRSA63J-334N	RESISTOR	330KΩ,1/16W
R305	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R306	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R307	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R318	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R319	NVP1201-103N	V RESISTOR,AUDIO REC LEVEL	10KΩ,1/2W
R320	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R321	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R322	NRSA63J-185N	RESISTOR	1.8MΩ,1/16W
R323	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R324	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R325	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R326	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R327	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R329	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R330	NRSA63J-151N	RESISTOR	150Ω,1/16W
R331	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R332	NRSA63J-133N	RESISTOR	13KΩ,1/16W
R333	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R334	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R335	NRSA63J-101N	RESISTOR	100Ω,1/16W
R336	NRSA63J-100N	RESISTOR	10Ω,1/16W
R337	NVP1201-473N	V RESISTOR,BIAS LEVEL	47KΩ,1/2W
R338	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R339	NRSA63K-8R2N	RESISTOR	8.2Ω,1/16W
R340	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R341	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R342	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R343	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R344	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R345	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R346	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R350	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R351	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R352	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R353	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R355	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R356	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R401	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R402	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R403	NVP1201-103N	V RESISTOR,L CARRIER	10KΩ,1/2W
R404	NVP1201-332N	V RESISTOR,R CARRIER	3.3KΩ,1/2W
R405	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R406	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R407	NVP1201-153N	V RESISTOR,L DEVIATION	15KΩ,1/2W
R408	NVP1201-153N	V RESISTOR,R DEVIATION	15KΩ,1/2W
R409	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R410	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R411	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R412	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R413	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R414	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R415	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R416	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R417	NRSA63J-112N	RESISTOR	1.1KΩ,1/16W
R418	NRSA63J-112N	RESISTOR	1.1KΩ,1/16W
R419	NRSA63J-821N	RESISTOR	820Ω,1/16W
R420	NRSA63J-821N	RESISTOR	820Ω,1/16W
R421	NRSA63J-681N	RESISTOR	680Ω,1/16W
R422	NRSA63J-681N	RESISTOR	680Ω,1/16W
R423	NRSA63J-821N	RESISTOR	820Ω,1/16W
R424	NRSA63J-821N	RESISTOR	820Ω,1/16W
R425	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R426	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R427	NRSA63J-224N	RESISTOR	220KΩ,1/16W
R428	NRSA63J-224N	RESISTOR	220KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R437	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R438	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R440	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R441	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R442	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R445	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R446	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R447	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R448	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R449	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R450	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R453	NRSA63J-101N	RESISTOR	100Ω,1/16W
R454	NRSA63J-101N	RESISTOR	100Ω,1/16W
R455	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R456	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R457	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R458	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R501	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R502	NRSA63J-752N	RESISTOR	7.5KΩ,1/16W
R503	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R504	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R505	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R506	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R507	NVP1201-472N	V RESISTOR,REC FM LEVEL	4.7KΩ,1/2W
R510	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R511	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R512	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R513	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R514	NRSA63J-185N	RESISTOR	1.8MΩ,1/16W
R515	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R516	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R517	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R518	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R519	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R520	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R521	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R522	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R523	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R524	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R525	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R528	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R529	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R531	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R533	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R535	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R536	NRSA63J-101N	RESISTOR	100Ω,1/16W
R900	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R901	NRSA63J-103N	RESISTOR	10KΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
B1	QRSA08J-0R0	RESISTOR	0Ω,1/10W
B2	QRSA08J-0R0	RESISTOR	0Ω,1/10W
B3	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
B4	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
C1	NCB31EK-103A	CAPACITOR	0.01μF,25V
C2	NCS31HJ-101A	CAPACITOR	100PF,50V
C3	NCB31HK-102A	CAPACITOR	0.001μF,50V
C4	NCS31HJ-8R0A	CAPACITOR	8PF,50V
C5	YU41582-200X	TRIMMER CAPACITOR,VXO	20PF
C6	NCB31EK-103A	CAPACITOR	0.01μF,25V
C7	NCB31EK-223A	CAPACITOR	0.022μF,25V
C8	NCB31EK-103A	CAPACITOR	0.01μF,25V
C9	NEE20JM-475RS	TANTAL CAPACITOR	4.7μF,6.3V
C10	YU41583-A226MZ	TANTAL CAPACITOR	22μF,10V
C11	NEE20JM-225RS	TANTAL CAPACITOR	2.2μF,6.3V
C12	NCB31EK-223A	CAPACITOR	0.022μF,25V
C13	NCB31EK-103A	CAPACITOR	0.01μF,25V
C14	NCB31EK-223A	CAPACITOR	0.022μF,25V
C15	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C16	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C17	QCSA1HJ-471	CAPACITOR	470PF,50V
C18	NCB31EK-103A	CAPACITOR	0.01μF,25V
C19	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C20	NCB31HK-102A	CAPACITOR	0.001μF,50V
C21	QCYA1HK-333	CAPACITOR	0.033μF,50V
C22	QCYA1HK-153	CAPACITOR	0.015μF,50V
C23	NCB31EK-103A	CAPACITOR	0.01μF,25V
C24	QCYA1EK-104	CAPACITOR	0.1μF,25V
C25	NCS31HJ-101A	CAPACITOR	100PF,50V
C26	QCYA1EK-683	CAPACITOR	0.068μF,25V
C27	NCB31EK-103A	CAPACITOR	0.01μF,25V
C28	NCB31EK-103A	CAPACITOR	0.01μF,25V
C29	NCB31EK-103A	CAPACITOR	0.01μF,25V
C30	NCB31EK-103A	CAPACITOR	0.01μF,25V
C31	NCB31EK-103A	CAPACITOR	0.01μF,25V
C32	NCB31EK-103A	CAPACITOR	0.01μF,25V
C33	NCB31EK-103A	CAPACITOR	0.01μF,25V
C34	NCB31EK-103A	CAPACITOR	0.01μF,25V
C35	YU40688-476NZ	E CAPACITOR	47μF
C36	NCB31EK-103A	CAPACITOR	0.01μF,25V
C37	NCB31EK-103A	CAPACITOR	0.01μF,25V
C38	NEE21VM-224RS	TANTAL CAPACITOR	0.22μF,35V
C39	NCB31EK-103A	CAPACITOR	0.01μF,25V
C40	NCB31EK-103A	CAPACITOR	0.01μF,25V
C41	NCB31EK-103A	CAPACITOR	0.01μF,25V
C43	NCS31HJ-220A	CAPACITOR	22PF,50V
C47	NCB31EK-103A	CAPACITOR	0.01μF,25V
C48	NEE21EM-225RS	TANTAL CAPACITOR	2.2μF,25V
C49	NCS31HJ-9R0A	CAPACITOR	9PF,50V
C50	NCS31HJ-101A	CAPACITOR	100PF,50V
C51	NCS31HJ-101A	CAPACITOR	100PF,50V
C56	QCYA1EK-473	CAPACITOR	0.047μF,25V
C57	YU41583-A226MZ	TANTAL CAPACITOR	22μF,10V
C58	NEE21EM-474RS	TANTAL CAPACITOR	0.47μF,25V
C59	NCS31HJ-121A	CAPACITOR	120PF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C60	NEE20JM-475RS	TANTAL CAPACITOR	4.7μF,6.3V
C62	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C63	NEE21EM-474RS	TANTAL CAPACITOR	0.47μF,25V
C64	NEE20JM-475RS	TANTAL CAPACITOR	4.7μF,6.3V
C65	NCS31HJ-120A	CAPACITOR	12PF,50V
C66	NCS31HJ-151A	CAPACITOR	150PF,50V
C67	NCS31HJ-221A	CAPACITOR	220PF,50V
C68	NCS31HJ-221A	CAPACITOR	220PF,50V
C69	NCS31HJ-2R0A	CAPACITOR	2PF,50V
C70	NCB31EK-103A	CAPACITOR	0.01μF,25V
C71	NEE21VM-224RS	TANTAL CAPACITOR	0.22μF,35V
C72	NCB31EK-103A	CAPACITOR	0.01μF,25V
C73	NCS31HJ-100A	CAPACITOR	10PF,50V
C74	NCS31HJ-390A	CAPACITOR	39PF,50V
C75	NCB31EK-103A	CAPACITOR	0.01μF,25V
C76	NCB31EK-103A	CAPACITOR	0.01μF,25V
C77	NCB31EK-103A	CAPACITOR	0.01μF,25V
C78	YU41583-A226MZ	TANTAL CAPACITOR	22μF,10V
C79	YU41583-A226MZ	TANTAL CAPACITOR	22μF,10V
C80	NCB31EK-103A	CAPACITOR	0.01μF,25V
C81	QCYA1EK-104	CAPACITOR	0.1μF,25
C82	NCT06CH-470A	CAPACITOR	47PF
C83	NCB31EK-103A	CAPACITOR	0.01μF,25
C84	NCS31HJ-9R0A	CAPACITOR	9PF,50
C86	NCS31HJ-221A	CAPACITOR	220PF,50
C87	NCS31HJ-471A	CAPACITOR	470PF,50
C88	NCS31HJ-471A	CAPACITOR	470PF,50
C89	NCS31HJ-101A	CAPACITOR	100PF,50
C90	NCS31HJ-101A	CAPACITOR	100PF,50
C91	NCB31EK-103A	CAPACITOR	0.01μF,25
C92	NCB31EK-103A	CAPACITOR	0.01μF,25
C93	NEE20JM-475RS	TANTAL CAPACITOR	4.7μF,6.3
C95	NEE20JM-475RS	TANTAL CAPACITOR	4.7μF,6.3
C97	NEE21CM-105RS	TANTAL CAPACITOR	1μF,16
C98	NCB31EK-103A	CAPACITOR	0.01μF,25
C99	YU41583-A226MZ	TANTAL CAPACITOR	22μF,10
C101	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10
C102	NEE21CM-105RS	TANTAL CAPACITOR	1μF,16
C104	NCS31HJ-270A	CAPACITOR	27PF,50
C111	NCB31EK-103A	CAPACITOR	0.01μF,25
C112	YU41583-A226MZ	TANTAL CAPACITOR	22μF,10
C121	NCB31EK-103A	CAPACITOR	0.01μF,25
C122	YU41583-A226MZ	TANTAL CAPACITOR	22μF,10
C123	NCB31EK-103A	CAPACITOR	0.01μF,25
C124	NCB31EK-103A	CAPACITOR	0.01μF,25
C125	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10
C126	NCS31HJ-330A	CAPACITOR	33PF,50
C127	NCS31HJ-270A	CAPACITOR	27PF,50
C128	YU41415-226-X	TANTAL CAPACITOR	22μ
C301	YU40688-336NZ	E CAPACITOR	33μ
C302	NEE21CM-475RS	TANTAL CAPACITOR	4.7μF,1
C303	NCB31HK-681A	CAPACITOR	680PF,5
C304	NCB31HK-332A	CAPACITOR	0.0033μF,5
C305	QEF81CM-105	T CAPACITOR	1μF,1

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C306	NCS31HJ-331A	CAPACITOR	330PF,50V
C307	NCB31EK-103A	CAPACITOR	0.01μF,25V
C308	YU40688-336NZ	E CAPACITOR	33μF
C317	QCF81CZ-105	CAPACITOR	1μF,16V
C318	NCB31HK-562A	CAPACITOR	0.0056μF,50V
C319	NEH11HM-104NZ	E CAPACITOR	0.1μF,50V
C320	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C321	YU40688-336NZ	E CAPACITOR	33μF
C322	YU41415-336-X	TANTAL CAPACITOR	33μF
C323	NEA31HM-105NZ	E CAPACITOR	1μF,50V
C324	NEA31CM-106NZ	E CAPACITOR	10μF,16V
C325	QCF81CZ-105	CAPACITOR	1μF,16V
C326	NCB31HK-102A	CAPACITOR	0.001μF,50V
C327	QCFA1CZ-105	CAPACITOR	1μF,16V
C328	NCB31HK-152A	CAPACITOR	0.0015μF,50V
C329	QCF81CZ-105	CAPACITOR	1μF,16V
C330	YU40688-476NZ	E CAPACITOR	47μF
C331	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C332	NCB31EK-103A	CAPACITOR	0.01μF,25V
C333	NCB31EK-103A	CAPACITOR	0.01μF,25V
C334	NCB31HK-562A	CAPACITOR	0.0056μF,50V
C335	NEA31CM-106NZ	E CAPACITOR	10μF,16V
C336	NCB31HK-102A	CAPACITOR	0.001μF,50V
C337	QFZ9011-333	CAPACITOR	0.033μF
C338	NCS31HJ-561A	CAPACITOR	560PF,50V
C339	NCB31HK-392A	CAPACITOR	0.0039μF,50V
C340	YU40688-336NZ	E CAPACITOR	33μF
C351	YU40688-476NZ	E CAPACITOR	47μF
C401	NEA31EM-475NZ	E CAPACITOR	4.7μF,25V
C402	NEA31EM-475NZ	E CAPACITOR	4.7μF,25V
C403	NCB31HK-102A	CAPACITOR	0.001μF,50V
C404	NCB31HK-102A	CAPACITOR	0.001μF,50V
C405	NCB31EK-103A	CAPACITOR	0.01μF,25V
C406	NCB31EK-103A	CAPACITOR	0.01μF,25V
C407	NCB31HK-122A	CAPACITOR	0.0012μF,50V
C408	NCB31HK-122A	CAPACITOR	0.0012μF,50V
C409	NCB31HK-332A	CAPACITOR	0.0033μF,50V
C410	NCB31HK-332A	CAPACITOR	0.0033μF,50V
C411	NCB31EK-103A	CAPACITOR	0.01μF,25V
C412	NCB31EK-103A	CAPACITOR	0.01μF,25V
C413	YU41415-336-X	TANTAL CAPACITOR	33μF
C414	YU40688-476NZ	E CAPACITOR	47μF
C415	NEE21CM-475RS	TANTAL CAPACITOR	4.7μF,16V
C416	NEE21CM-475RS	TANTAL CAPACITOR	4.7μF,16V
C417	NCB31EK-223A	CAPACITOR	0.022μF,25V
C418	NCB31EK-223A	CAPACITOR	0.022μF,25V
C419	NEA31EM-475NZ	E CAPACITOR	4.7μF,25V
C420	NEA31EM-475NZ	E CAPACITOR	4.7μF,25V
C421	NCB31EK-223A	CAPACITOR	0.022μF,25V
C422	NCB31EK-223A	CAPACITOR	0.022μF,25V
C423	NCB31HK-102A	CAPACITOR	0.001μF,50V
C424	NCB31HK-102A	CAPACITOR	0.001μF,50V
C425	NCB31HK-682A	CAPACITOR	0.0068μF,50V
C426	NCB31HK-682A	CAPACITOR	0.0068μF,50V
C427	NEA31EM-475NZ	E CAPACITOR	4.7μF,25V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C428	NEE21CM-475RS	TANTAL CAPACITOR	4.7μF,16V
C429	NEA31HM-105NZ	E CAPACITOR	1μF,50V
C430	NEA31HM-105NZ	E CAPACITOR	1μF,50V
C431	NCB31HK-152A	CAPACITOR	0.0015μF,50V
C432	NCB31HK-152A	CAPACITOR	0.0015μF,50V
C433	QCYA1EK-223	CAPACITOR	0.022μF,25V
C434	QCYA1EK-223	CAPACITOR	0.022μF,25V
C435	NEE21EM-225RS	TANTAL CAPACITOR	2.2μF,25V
C436	NEE21EM-225RS	TANTAL CAPACITOR	2.2μF,25V
C441	NCB31EK-103A	CAPACITOR	0.01μF,25V
C442	NCB31EK-103A	CAPACITOR	0.01μF,25V
C443	YU40688-336NZ	E CAPACITOR	33μF
C444	YU40688-336NZ	E CAPACITOR	33μF
C447	YU41415-336-X	TANTAL CAPACITOR	33μF
C448	YU40688-476NZ	E CAPACITOR	47μF
C449	NCB31EK-103A	CAPACITOR	0.01μF,25V
C450	NCB31EK-103A	CAPACITOR	0.01μF,25V
C451	NCB31HK-102A	CAPACITOR	0.001μF,50V
C452	NCB31HK-102A	CAPACITOR	0.001μF,50V
C501	NCB31EK-223A	CAPACITOR	0.022μF,25V
C502	NCB31EK-103A	CAPACITOR	0.01μF,25V
C503	NCS31HJ-101A	CAPACITOR	100PF,50V
C504	QCSA1HJ-182	CAPACITOR	0.0018μF,50V
C505	NEA31HM-105NZ	E CAPACITOR	1μF,50V
C506	YU40688-476NZ	E CAPACITOR	47μF
C507	NCB31EK-103A	CAPACITOR	0.01μF,25V
C508	QEF81VM-224	TANTAL CAPACITOR	0.22μF,35V
C509	NCB31EK-103A	CAPACITOR	0.01μF,25V
C510	QEF81CM-105	TANTAL CAPACITOR	1μF,16V
C511	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C512	YU40688-476NZ	E CAPACITOR	47μF
C513	YU40688-476NZ	E CAPACITOR	47μF
C514	NEH11CM-476NP	E CAPACITOR	47μF,16V
C515	QCYA1EK-104	CAPACITOR	0.1μF,25V
C516	YU40688-336NZ	E CAPACITOR	33μF
C517	NEA31HM-105NZ	E CAPACITOR	1μF,50V
C519	NEA31EM-475NZ	E CAPACITOR	4.7μF,25V
C520	NCS31HJ-471A	CAPACITOR	470PF,50V
C521	YU40688-336NZ	E CAPACITOR	33μF
L1	YU41134-101J	COIL	100μH
L2	YU41135-470	COIL	47μH
L3	PU57620-102K	COIL	1mH
L4	YU40941-682	COIL	6.8mH
L5	YU41134-331J	COIL	330μH
L6	YU41134-121J	COIL	120μH
L7	YU41134-331J	COIL	330μH
L8	YU40740-470K	COIL	47μH
L9	YU41477-220J	COIL	22μH
L10	YU41134-470J	COIL	47μH
L14	YU41135-470	COIL	47μH
L15	YU41135-470	COIL	47μH
L16	YU41477-180J	COIL	18μH
L17	YU41135-470	COIL	47μH

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L21	YU41135-470	COIL	47μH
L25	YU41135-470	COIL	47μH
L301	YU41135-470	COIL	47μH
L302	YU41135-470	COIL	47μH
L303	YU41392-Z	EQUALIZER	
⚠ L304	YU41716-P	OSC COIL	
L401	YU40933-P	BPF(1.3M)	
L402	YU40934-P	BPF(1.7M)	
L501	YU41135-470	COIL	47μH
L502	YU41135-470	COIL	47μH
L503	YU41135-470	COIL	47μH
L504	YU41135-470	COIL	47μH
EQ1	YU41577-R	EQUALIZER	
LPF1	YU41576-P	LOW PASS FILTER	
LPF2	YU41578-R	LOW PASS FILTER	
LPF3	YU41643-Z	LOW PASS FILTER	
BPF1	YU41639-P	BAND PASS FILTER	
BPF2	PU58633	BAND PASS FILTER	
DL1	PEVB0366	COMB FILTER,DL-1	
⚠ X1	PU53612-2	CRYSTAL RESONATOR	
SLD1	YQ41906	SHIELD PLATE	
TP1	YU41389-AY	TEST PIN,GND	
TP2	YU41389-AY	TEST PIN,VCXO OUT1	
TP3	YU41389-AY	TEST PIN,VCXO OUT2	
TP4	YU41389-AY	TEST PIN,SUB BM OUT	
TP5	YU41389-AY	TEST PIN,PB COLOR	
TP6	YU41389-AY	TEST PIN,SUB EMPHA IN	
TP7	YU41389-AY	TEST PIN,SUB EMPHA OUT	
TP8	YU41389-AY	TEST PIN,Y OUT	
TP9	YU41389-AY	TEST PIN,EMPHASIS	
TP10	YU41389-AY	TEST PIN,VIDEO OUT	
TP11	YU41389-AY	TEST PIN,YNR RETURN	
TP12	YU41389-AY	TEST PIN,REC FM	
TP13	YU41389-AY	TEST PIN,COLOR OUT	
TP14	YU41389-AY	TEST PIN,GND	
TP15	YU41389-AY	TEST PIN,YNR OUT	
TP301	YU41389-AY	TEST PIN,N AUDIO BIAS(+)	
TP302	YU41389-AY	TEST PIN,N AUDIO BIAS(-)	
TP303	YU41389-AY	TEST PIN,N AUDIO OUT	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
CN1	YU41355-16	CAP HOUSING
CN2	YU41356-5	CAP HOUSING
CN3	YU41359-30	CAP HOUSING,(BOARD TO BOARD)
CN4	YU41492-22	CAP HOUSING,(BOARD TO BOARD)
CN5	YU41359-6	CAP HOUSING,(BOARD TO BOARD)
CN6	YU41354-8	CAP HOUSING
CN7	YU41356-5	CAP HOUSING

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JACK BOARD ASSEMBLY <03>

PWBA	YB20345A-01	JACK BOARD ASSY	
D1	ERA81-004-F	DIODE	
R1	QRD161J-750	RESISTOR	75Ω,1/6V
R2	QRD161J-750	RESISTOR	75Ω,1/6V
R3	QRD161J-750	RESISTOR	75Ω,1/6V
R4	QRD161J-183	RESISTOR	18KΩ,1/6V
R5	QRD161J-183	RESISTOR	18KΩ,1/6V
R6	QRD161J-273	RESISTOR	27KΩ,1/6V
⚠ R7	PU60466-R023	FUSIBLE RESISTOR	
C1	QCBB1HK-102	CAPACITOR	0.001μF,50
C2	QCBB1HK-102	CAPACITOR	0.001μF,50
C4	QER40GM-477	E CAPACITOR	470μF,4.0
C5	QER40GM-477	E CAPACITOR	470μF,4.0
J1	YQ30657	JACK UNIT	
SPC1	YU41684	SPACER	
WR1	ML-Y00506A	JACK BOARD WIRE,FOR CN3	
CN1	YU41359-22-R	CAP HOUSING,(BOARD TO BOARD)	
CN2	YU40096-3	CAP HOUSING	
CN3	YU40096-4	CAP HOUSING	
CN4	YU40096-3	CAP HOUSING	
CN5	YU40683-6	CAP HOUSING,(BOARD TO BOARD)	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	

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SW BOARD ASSEMBLY <04>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20388A	SWITCH BOARD ASSY	
SW1	PESW0560	SLIDE SWITCH,AUDIO OUT.SEL.SW	
SW2	YU41561	SLIDE SWITCH,DUB SW	
SW3	YU41561	SLIDE SWITCH,S-VHS SW	
CN1	YU40682-6	CAP HOUSING,(BOARD TO BOARD)	

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MIC JACK/TRIGGER BOARD ASSEMBLY <05>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20393A1	MIC JACK/TRIGGER BOARD ASSY	
R1	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
C3	YU40688-476NZ	E CAPACITOR	47μF
SW1	PU59843	TRIGGER SW	
HD1	YQ41869-1-2	BOARD HOLDER	
J1	YU41413	MIC JACK	
SCW1	SPSF2005Z	SCREW,X2	
SLD1	YQ42003	SHIELD PLATE	
SLD2	YQ42017	SHIELD PLATE	
WR1	ML-Y00509B-1	MIC JACK/TRG.WIRE,FOR CN1	
CN1	PU58654-10	CAP HOUSING	
CN2	PU58654-3	CAP HOUSING	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	

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MIC AMP BOARD ASSEMBLY <06>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20346A-03	MIC AMP BOARD ASSY	
IC1	BA3308F	IC	
Q1	2SC4081(RS)	TRANSISTOR	
Q2	2SC4081(RS)	TRANSISTOR	
Q3	DTC143TU	TRANSISTOR	
Q4	DTC143XU	TRANSISTOR	
D1	IMN10	DIODE	
D2	DAP202U	DIODE	
R3	NRSA63J-101N	RESISTOR	100Ω,1/16W
R4	NRSA63J-221N	RESISTOR	220Ω,1/16W
R5	NRSA63J-221N	RESISTOR	220Ω,1/16W
R6	NRSA63J-101N	RESISTOR	100Ω,1/16W
R7	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R8	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R10	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R11	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R12	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R13	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R14	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R15	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R16	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R17	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R18	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R19	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R20	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R21	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R22	NRSA63J-823N	RESISTOR	82KΩ,1/16W
R23	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R24	QRSA08J-221Y	RESISTOR	220Ω,1/10W
R25	QRSA08J-221Y	RESISTOR	220Ω,1/10W
C2	NCS31HJ-101A	CAPACITOR	100PF,50V
C3	NEN11HM-105NZ	E CAPACITOR	1μF,50V
C4	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C5	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C6	NEN11HM-105NZ	E CAPACITOR	1μF,50V
C7	NCS31HJ-101A	CAPACITOR	100PF,50V
C8	NCS31HJ-121A	CAPACITOR	120PF,50V
C9	NCS31HJ-121A	CAPACITOR	120PF,50V
C11	NEH11EM-475NZ	E CAPACITOR	4.7μF,25V
C12	NEE20JM-225RS	TANTAL CAPACITOR	2.2μF,6.3V
C13	NEE20JM-225RS	TANTAL CAPACITOR	2.2μF,6.3V
C14	YU40688-476NZ	E CAPACITOR	47μF

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C15	NCB31HK-102A	CAPACITOR	0.001μF,50V
C16	NCB31HK-102A	CAPACITOR	0.001μF,50V
SLD1	YQ42002-1-1	SHIELD PLATE	
SPC1	YQM30029-12	SPACER	
WR1	ML-Y00507B	MIC AMP BOARD WIRE,FOR CN1	
CN1	YU40096-5	CAP HOUSING	
CN2	YU40096-4	CAP HOUSING	

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MIC SWITCH BOARD ASSEMBLY <07>

PWBA	YB20393A2	MIC SWITCH BOARD ASSY
SW1	YU41689	SWITCH

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SENSOR BOARD ASSEMBLY <08>

PWBA	YQ30621A-2	SENSOR BOARD ASSY

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PRE/REC AMP <09>

PWBA	BW7772C	PRE/REC AMP

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION

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END SENSOR BKT ASSEMBLY <11>

PWBA	YQ41594A-6	END SENSOR BKT ASSY
BKT1	YQ30614-1-4	END SENSER BKT

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VIDEO BOARD ASSEMBLY <21>

PWBA	YB20383A-01	VIDEO BOARD ASSY
IC101	UPC2375GB	IC
IC102	MSC7002GS-VK	IC
IC103	AN2271FAS	IC
IC105	TK10682M	IC
IC106	AK9812	IC
IC107	NJM2249M	IC
IC108	MN4053BS	IC
IC109	TC4S01F	IC
IC110	TC4S69F	IC
Q101	2SC4655	TRANSISTOR
Q102	2SC4655	TRANSISTOR
Q103	2SC4655	TRANSISTOR
Q104	XP5501	TRANSISTOR
Q105	2SC4655	TRANSISTOR
Q106	XP5501	TRANSISTOR
Q107	XP5501	TRANSISTOR
Q108	XP5501	TRANSISTOR
Q109	2SA1790	TRANSISTOR
Q111	2SC4655	TRANSISTOR
Q112	XP5501	TRANSISTOR
Q113	2SC4655	TRANSISTOR
D101	MA110	DIODE
D102	MA110	DIODE
D103	RB715F	DIODE
D104	MA110	DIODE
D105	MA133	DIODE
D107	MA133	DIODE
D108	MA133	DIODE
D109	MA133	DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION
R1	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R2	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R3	NRSA63J-0R0A	RESISTOR 0Ω,1/16W
R4	NVP1201-223N	V RESISTOR,B GAIN 22KΩ,1/2W
R5	NRSA63J-0R0A	RESISTOR 0Ω,1/16W
R6	NVP1201-223N	V RESISTOR,R GAIN 22KΩ,1/2W
R8	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R9	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R11	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R12	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R13	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R14	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R15	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R16	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R17	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R18	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R19	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R20	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R21	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R22	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R23	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R24	NRSA63J-0R0A	RESISTOR 0Ω,1/16W
R25	NRSA63J-0R0A	RESISTOR 0Ω,1/16W
R26	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R27	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R28	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R29	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R30	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R31	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R32	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R33	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R34	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R35	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R36	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R37	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R38	NRSA63J-393N	RESISTOR 39KΩ,1/16W
R39	NRSA63J-393N	RESISTOR 39KΩ,1/16W
R40	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R41	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R42	NRSA63J-182N	RESISTOR 1.8KΩ,1/16W
R43	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R44	NRSA63J-113N	RESISTOR 11KΩ,1/16W
R45	NRSA63J-393N	RESISTOR 39KΩ,1/16W
R46	NRSA63J-392N	RESISTOR 3.9KΩ,1/16W
R48	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R49	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R50	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R51	NRSA63J-563N	RESISTOR 56KΩ,1/16W
R52	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R53	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R54	NRSA63J-225N	RESISTOR 2.2MΩ,1/16W
R55	NVP1201-223N	V RESISTOR,COLOR DIF BALANCE 22KΩ,1/2W
R56	NRSA63J-225N	RESISTOR 2.2MΩ,1/16W
R57	NVP1201-223N	V RESISTOR,COLOR OFFSET 22KΩ,1/2W
R58	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R59	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R60	NRSA63J-153N	RESISTOR 15KΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION
R61	NRSA63J-822N	RESISTOR 8.2KΩ,1/16W
R62	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R63	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R64	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R65	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R66	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R68	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R69	NRSA63J-822N	RESISTOR 8.2KΩ,1/16W
R70	NRSA63J-333N	RESISTOR 33KΩ,1/16W
R71	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R72	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R73	NRSA63J-183N	RESISTOR 18KΩ,1/16W
R74	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R75	NRSA63J-822N	RESISTOR 8.2KΩ,1/16W
R76	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R77	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R79	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R80	NRSA63J-123N	RESISTOR 12KΩ,1/16W
R81	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R82	NRSA63J-124N	RESISTOR 120KΩ,1/16W
R83	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R84	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R85	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R87	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R89	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R90	NRSA63J-113N	RESISTOR 11KΩ,1/16W
R91	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R92	NRSA63J-225N	RESISTOR 2.2MΩ,1/16W
R93	NVP1201-223N	V RESISTOR,COLOR DIF OFFSET 22KΩ,1/2W
R94	NRSA63J-104N	RESISTOR 100KΩ,1/16W
R95	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R96	NVP1201-222N	V RESISTOR,WHITE CLIP LEVEL 2.2KΩ,1/2W
R97	NRSA63J-0R0A	RESISTOR 0Ω,1/16W
R99	NVP1201-104N	V RESISTOR,R-Y SC BAL 100KΩ,1/2W
R100	NRSA63J-473N	RESISTOR 47KΩ,1/16W
R101	NRSA63J-101N	RESISTOR 100Ω,1/16W
R102	NVP1201-104N	V RESISTOR,B-Y SC BAL 100KΩ,1/2W
R103	NRSA63J-473N	RESISTOR 47KΩ,1/16W
R104	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R105	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R106	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R107	NRSA63J-751N	RESISTOR 750Ω,1/16W
R108	NRSA63J-182N	RESISTOR 1.8KΩ,1/16W
R109	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R110	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R111	NRSA63J-100N	RESISTOR 10Ω,1/16W
R112	NRSA63J-393N	RESISTOR 39KΩ,1/16W
R113	NRSA63J-183N	RESISTOR 18KΩ,1/16W
R114	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R116	NRSA63J-0R0A	RESISTOR 0Ω,1/16W
R117	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R118	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R119	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R120	NRSA63J-273N	RESISTOR 27KΩ,1/16W
R121	NRSA63J-153N	RESISTOR 15KΩ,1/16W
R122	NRSA63J-103N	RESISTOR 10KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R123	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R124	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R125	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R126	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R127	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R128	NVP1201-472N	V RESISTOR,SYNC LEVEL	4.7KΩ,1/2W
R129	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R130	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R131	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R132	NRSA63J-751N	RESISTOR	750Ω,1/16W
R135	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R136	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R137	NRSA63J-100N	RESISTOR	10Ω,1/16W
R138	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R139	NRSA63J-391N	RESISTOR	390Ω,1/16W
R141	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R142	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R143	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R144	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R145	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R146	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R147	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R148	NRVA63D-202N	RESISTOR	2KΩ,1/16W
R149	NRVA63D-123N	RESISTOR	12KΩ,1/16W
R150	NRSA63G-154N	RESISTOR	150KΩ,1/16W
R151	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R152	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R153	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R154	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R155	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R156	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R157	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R159	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R161	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R164	NRSA63J-680N	RESISTOR	68Ω,1/16W
R172	NRSA63J-124N	RESISTOR	120KΩ,1/16W
R173	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R174	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R176	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R177	NVP1201-223N	V RESISTOR,NOT USE	22KΩ,1/2W
R178	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R179	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R180	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R181	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R182	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R184	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R185	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R186	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R187	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R199	NRSA63J-0R0A	RESISTOR	0Ω,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C2	NEE21AM-336RU	TANTAL CAPACITOR	33μF,10V
C4	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C9	QCYA1EK-104	CAPACITOR	0.1μF,25V
C10	QCYA1EK-104	CAPACITOR	0.1μF,25V
C14	QCYA1EK-104	CAPACITOR	0.1μF,25V
C15	NEE20GM-106RS	TANTAL CAPACITOR	10μF,4.0V
C16	QCYA1EK-104	CAPACITOR	0.1μF,25V
C19	QCYA1EK-104	CAPACITOR	0.1μF,25V
C20	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C21	QCYA1EK-104	CAPACITOR	0.1μF,25V
C22	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C23	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C24	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C25	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C26	QCYA1EK-104	CAPACITOR	0.1μF,25V
C27	NCB31EK-223A	CAPACITOR	0.022μF,25V
C28	QCYA1EK-104	CAPACITOR	0.1μF,25V
C29	NCB31EK-223A	CAPACITOR	0.022μF,25V
C30	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C31	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C32	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C33	NEE21AM-476RU	TANTAL CAPACITOR	47μF,10V
C34	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C35	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C36	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C37	NEE21VM-474RS	TANTAL CAPACITOR	0.47μF,35V
C38	NEE21VM-474RS	TANTAL CAPACITOR	0.47μF,35V
C39	NCB31EK-223A	CAPACITOR	0.022μF,25V
C44	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C45	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C46	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C47	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C48	NEE21CM-685RS	TANTAL CAPACITOR	6.8μF,16V
C49	NCB31EK-103A	CAPACITOR	0.01μF,25V
C50	QCYA1EK-473	CAPACITOR	0.047μF,25V
C51	QCYA1EK-473	CAPACITOR	0.047μF,25V
C52	QCYA1EK-473	CAPACITOR	0.047μF,25V
C53	QCYA1EK-473	CAPACITOR	0.047μF,25V
C55	QCYA1EK-473	CAPACITOR	0.047μF,25V
C56	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C60	QCYA1EK-473	CAPACITOR	0.047μF,25V
C62	QCYA1EK-473	CAPACITOR	0.047μF,25V
C64	QCYA1EK-104	CAPACITOR	0.1μF,25V
C65	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C67	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C68	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C69	QCYA1EK-473	CAPACITOR	0.047μF,25V
C70	QCYA1EK-473	CAPACITOR	0.047μF,25V
C71	QCYA1EK-473	CAPACITOR	0.047μF,25V
C72	QCYA1EK-473	CAPACITOR	0.047μF,25V
C73	NEE21CM-685RS	TANTAL CAPACITOR	6.8μF,16V
C74	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C75	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C77	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C78	QCYA1EK-473	CAPACITOR	0.047μF,25V
C79	QCYA1EK-473	CAPACITOR	0.047μF,25V
C80	QCYA1EK-473	CAPACITOR	0.047μF,25V
C81	QCYA1EK-473	CAPACITOR	0.047μF,25V
C82	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C83	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C84	QCYA1EK-473	CAPACITOR	0.047μF,25V
C85	QCYA1EK-473	CAPACITOR	0.047μF,25V
C86	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C87	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C89	QCYA1EK-473	CAPACITOR	0.047μF,25V
C90	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C91	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C92	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C93	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C94	QCYA1EK-473	CAPACITOR	0.047μF,25V
C95	QCYA1EK-473	CAPACITOR	0.047μF,25V
C96	QCYA1EK-473	CAPACITOR	0.047μF,25V
C97	QCYA1EK-473	CAPACITOR	0.047μF,25V
C99	NCB31EK-103A	CAPACITOR	0.01μF,25V
C100	NCB31EK-103A	CAPACITOR	0.01μF,25V
C103	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C104	NCB31EK-103A	CAPACITOR	0.01μF,25V
C107	NCT07CH-5R0A	CAPACITOR	5PF
C108	NCB31EK-103A	CAPACITOR	0.01μF,25V
C109	QCYA1EK-473	CAPACITOR	0.047μF,25V
C110	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C114	NEE21AM-475RS	TANTAL CAPACITOR	4.7μF,10V
C115	QCYA1EK-473	CAPACITOR	0.047μF,25V
C116	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C117	QCYA1EK-473	CAPACITOR	0.047μF,25V
C119	QCYA1EK-473	CAPACITOR	0.047μF,25V
C120	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C121	QCFA1CZ-105	CAPACITOR	1μF,16V
C125	QCFA1CZ-105	CAPACITOR	1μF,16V
C126	NEE21CM-685RS	TANTAL CAPACITOR	6.8μF,16V
C127	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C128	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C129	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C130	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C131	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C132	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C133	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C134	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C135	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
C136	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C137	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C138	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C139	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C140	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C141	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C142	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C143	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C144	NCF31CZ-104A	CAPACITOR	0.1μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C145	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C146	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C147	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C148	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C149	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C155	NCT07CH-101A	CAPACITOR	100PF
C156	NCF31CZ-104A	CAPACITOR	0.1μF,16V
L101	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L102	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L103	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L104	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L105	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L106	YU40740-470K	COIL	47μH
	or YU41135-470	COIL	47μH
L107	YU40740-470K	COIL	47μH
	or YU41135-470	COIL	47μH
L108	YU40740-470K	COIL	47μH
	or YU41135-470	COIL	47μH
L109	YU40740-470K	COIL	47μH
	or YU41135-470	COIL	47μH
L110	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L111	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L112	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L114	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L115	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
L116	YU40740-220K	COIL	22μH
	or YU41135-220K	COIL	22μH
TRAP1	YU41644-Z	TRAP,TRAP101	
TRAP2	YU41721-Z	TRAP,TRAP102	
EQ101	YU41494-P	EQUALIZER	
LPF101	YU41495-P	LOW PASS FILTER	
LPF102	PELN0355-Z	LOW PASS FILTER	
	or PELN0356-Z	LOW PASS FILTER	
LPF103	PELN0355-Z	LOW PASS FILTER	
	or PELN0356-Z	LOW PASS FILTER	
BPF101	YU41497-Z	BAND PASS FILTER	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
DL101	YU40655-Z	DELAY LINE
DL102	YU40655-Z	DELAY LINE
DL103	PELN0352-R	FILTER
TP101	YU40581	TEST PIN,GND
TP102	YU40581	TEST PIN,AW R-Y
CN101	YU40682-12	CAP HOUSING,(BOARD TO BOARD)
CN102	YU40682-22	CAP HOUSING(BOARD TO BOARD)
CN103	YU40682-22	CAP HOUSING(BOARD TO BOARD)
CN104	YU40682-22	CAP HOUSING(BOARD TO BOARD)
CN105	YU40682-12	CAP HOUSING,(BOARD TO BOARD)
CN106	YU41356-3-P	CAP HOUSING
CN107	YU41355-8-R	CAP HOUSING
CN108	YU41356-4-R	CAP HOUSING

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IMAGER BOARD ASSEMBLY <22>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20382B-02	IMAGER BOARD ASSY	
IC202	UPD9430GK	IC	
IC203	CXD1250N	IC	
IC204	UPC2387GR	IC	
IC205	TC4S69F	IC	
Q201	2SK663	TRANSISTOR	
Q202	XP5601	TRANSISTOR	
Q203	XP5601	TRANSISTOR	
Q204	2SC4176	TRANSISTOR	
Q205	2SA1610	TRANSISTOR	
Q208	XP5501	TRANSISTOR	
Q209	2SC4655	TRANSISTOR	
Q210	2SC4655	TRANSISTOR	
D201	MA110	DIODE	
D202	MA110	DIODE	
D203	MA110	DIODE	
D204	MA110	DIODE	
D205	MA110	DIODE	
D208	MA8240	DIODE	
D209	MA8240	DIODE	
R201	NRSA63J-821N	RESISTOR	820Ω,1/16W
R202	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R203	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R204	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R205	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R206	NRSA63J-100N	RESISTOR	10Ω,1/16W
R207	NRSA63J-100N	RESISTOR	10Ω,1/16W
R208	NRSA63J-101N	RESISTOR	100Ω,1/16W
R210	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R211	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R212	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R213	NRSA63J-560N	RESISTOR	56Ω,1/16W
R214	NRSA63J-821N	RESISTOR	820Ω,1/16W
R215	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R216	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R217	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R218	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R219	NVP1201-104N	V RESISTOR,V.SUB	100KΩ,1/2W
R220	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R221	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R222	NRSA63J-101N	RESISTOR	100Ω,1/16W
R223	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R224	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R225	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R226	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R227	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R228	NVP1201-223N	V RESISTOR,RESET BIAS	22KΩ,1/2W
R229	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R230	NRSA63J-391N	RESISTOR	390Ω,1/16W
R231	NRSA63J-270N	RESISTOR	27Ω,1/16W
R232	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R233	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R234	NRSA63J-220N	RESISTOR	22Ω,1/16W
R235	NRSA63J-220N	RESISTOR	22Ω,1/16W
R236	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R241	NVP1201-221N	V RESISTOR,CDS CANCEL	220Ω,1/2W
R242	NRSA63J-472N	RESISTOR	4.7KΩ,1/16
R243	NRSA63J-332N	RESISTOR	3.3KΩ,1/16
R244	NRSA63J-102N	RESISTOR	1KΩ,1/16
R245	NRSA63J-332N	RESISTOR	3.3KΩ,1/16
R246	NRSA63J-102N	RESISTOR	1KΩ,1/16
R247	NRSA63J-332N	RESISTOR	3.3KΩ,1/16
R248	NRSA63J-102N	RESISTOR	1KΩ,1/16
R249	NRSA63J-102N	RESISTOR	1KΩ,1/16
R250	NRSA63J-222N	RESISTOR	2.2KΩ,1/16
R251	NRSA63J-222N	RESISTOR	2.2KΩ,1/16
R252	NRSA63J-180N	RESISTOR	18Ω,1/16
R253	NRSA63J-180N	RESISTOR	18Ω,1/16
R254	NRSA63J-100N	RESISTOR	10Ω,1/16
R255	NRSA63J-102N	RESISTOR	1KΩ,1/16
R261	YU41573-681NY	RESISTOR	680
R262	NRSA63J-681NY	RESISTOR	680Ω,1/16
R263	NRSA63J-681NY	RESISTOR	680Ω,1/16
R264	YU41573-681NY	RESISTOR	680
R265	YU41573-681NY	RESISTOR	680
R267	NRSA63J-561NY	RESISTOR	560Ω,1/16
C201	NCT07CH-6R0A	CAPACITOR	6
C203	PU59867-200X	TRIMMER CAPACITOR,OSC FREQ	20
C204	NCF31CZ-104A	CAPACITOR	0.1μF,1

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C205	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C206	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C207	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C208	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C209	NEE21AM-476RU	TANTAL CAPACITOR	47μF,10V
	C210	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C211	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C212	QCFA1CZ-105	CAPACITOR	1μF,16V
	C213	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C214	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C215	QCFA1CZ-105	CAPACITOR	1μF,16V
	C216	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C217	NEE21CM-685RS	TANTAL CAPACITOR	6.8μF,16V
	C218	NEE21EM-105RS	TANTAL CAPACITOR	1μF,25V
	C219	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C220	NEE21EM-105RS	TANTAL CAPACITOR	1μF,25V
	C221	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C222	NEE21EM-685RU	TANTAL CAPACITOR	6.8μF,25V
	C223	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C224	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C225	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C226	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C227	NEE21EM-685RU	TANTAL CAPACITOR	6.8μF,25V
	C228	NEE20GM-106RS	TANTAL CAPACITOR	10μF,4.0V
	C229	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C230	NCT07CH-330A	CAPACITOR	33PF
	C231	NCT07CH-470A	CAPACITOR	47PF
	C232	NCT07CH-470A	CAPACITOR	47PF
	C233	QCFA1CZ-105	E CAPACITOR	1μF,16V
	C234	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C237	QCF81HZ-104ZL	CAPACITOR	0.1μF,50V
	C238	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C239	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C240	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C241	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C242	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C243	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C244	QCYA1EK-104	CAPACITOR	0.1μF,25V
	C245	NEE21AM-106RS	TANTAL CAPACITOR	10μF,10V
	C246	NCT07CH-560A	CAPACITOR	56PF
	C247	NCT07CH-680A	CAPACITOR	68PF
	C248	NCT07CH-101A	CAPACITOR	100PF
	C249	QCFA1CZ-105	CAPACITOR	1μF,16V
	C250	NCT07CH-220A	CAPACITOR	22PF
	L201	YU40740-100K	COIL	10μH
		or YU41135-100K	COIL	10μH
	L202	YU40740-220K	COIL	22μH
		or YU41135-220K	COIL	22μH
	L203	YU40740-220K	COIL	22μH
		or YU41135-220K	COIL	22μH
	L204	YU40740-220K	COIL	22μH
		or YU41135-220K	COIL	22μH
	L205	YU41607-Y	INDUCTOR	
	L206	YU41607-Y	INDUCTOR	
	L207	YU41607-Y	INDUCTOR	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	BPF201	YU41325-7R2-Z	COIL	7.2μH
⚠	X201	YU41452	CRYSTAL RESONATOR	
	TP201	YU40581	TEST PIN,CDS CLOCK	
	TP202	YU40581	TEST PIN,GND	
	TP203	YU40581	TEST PIN,RESET PULSE	
	TP204	YU40581	TEST PIN,VSUB	
	CN201	PU58655-3	CAP HOUSING	
	CN202	PU58655-10	CAP HOUSING	
	CN203	YU40684-16	CAP HOUSING,(BOARD TO BOARD)	
	CN204	YU40684-12	CAP HOUSING,(BOARD TO BOARD)	
	CN205	YU40684-22	CAP HOUSING,(BOARD TO BOARD)	
⚠	CP201	ICP-F15	CIRCUIT PROTECTOR	

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CTL BOARD ASSEMBLY <23>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA	YB20385D-01	CTL BOARD ASSY
	IC301	M37413E6-105FP	IC
	IC302	UPD6451AGT-805	IC
	IC303	BU5736KS	IC
	IC304	M5M5256BFP-L	IC
	IC305	LM358DB-WE	IC
	IC306	S-8051HN-CD	IC
	IC307	S-81250HG-RD	IC
	IC308	MN12821(QR)	IC
	IC309	RH5VA26A	IC
	IC310	MM1028-BF	IC
	IC311	SN74HC08DB	IC
	IC312	SN74HC04DB	IC
	IC313	TC7S04F	IC
	IC314	TC7S04F	IC
	IC317	HD74HC165FP	IC
		or MB74HC165PF	IC
	IC318	S-8054HN-CB-X	IC
	IC319	TC7S04F	IC
	Q301	2SB1462(QR)	TRANSISTOR
	Q302	2SB1462(QR)	TRANSISTOR
	Q303	UN9213	TRANSISTOR
	Q304	2SC3936(C)	TRANSISTOR
	Q305	2SC4655	TRANSISTOR
	D301	1SV223	DIODE
	D302	RB715F	DIODE
⚠	D303	MA704	DIODE
	D304	MA8075	DIODE
	D305	MA8075	DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R301	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R302	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R303	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R304	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R305	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R306	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R307	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R308	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R309	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R310	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R311	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R312	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R313	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R314	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R315	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R316	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R317	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R318	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R319	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R320	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R321	NRSA63J-685N	RESISTOR	6.8MΩ,1/16W
R322	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R323	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R324	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R325	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R326	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R327	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R328	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R329	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R330	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R331	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R332	NRSA63J-330N	RESISTOR	33Ω,1/16W
R333	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R334	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R335	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R336	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R337	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R338	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R339	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R340	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R341	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R342	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R343	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R344	NRSA63J-101N	RESISTOR	100Ω,1/16W
R345	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R347	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R348	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R349	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R351	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R352	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R353	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R354	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
⚠ R355	NRSA63J-102N	RESISTOR	1KΩ,1/16W
⚠ R356	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R358	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R359	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R361	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R362	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R363	NRSA63J-221N	RESISTOR	220Ω,1/16W
R364	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R365	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R366	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R367	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R369	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R370	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R371	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R372	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R373	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R374	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R375	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R376	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R377	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R378	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R379	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R380	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R381	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R382	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R383	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R384	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R385	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R386	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R387	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R388	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R389	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R390	NRSA63J-474N	RESISTOR	470KΩ,1/16W
R391	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R396	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R397	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R398	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R601	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R602	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R603	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R604	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R605	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R606	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
R608	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R609	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
RA301	YU41580	RESISTOR ARRAY	
C301	NCF31CZ-104A	CAPACITOR	0.1μF,16
C302	QCFA1CZ-105	CAPACITOR	1μF,16
C303	QCFA1CZ-105	CAPACITOR	1μF,16
C304	QCFA1CZ-105	CAPACITOR	1μF,16
C305	QCFA1CZ-105	CAPACITOR	1μF,16
C306	NEH11CM-476NP	E CAPACITOR	47μF,16
C307	NEH10JM-107NP	E CAPACITOR	100μF,6.3
C308	QCFA1CZ-105	CAPACITOR	1μF,16
C309	QCFA1CZ-105	CAPACITOR	1μF,16
C310	NCF31CZ-104A	CAPACITOR	0.1μF,16

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C311	NCT07CH-120A	CAPACITOR	12PF
C312	NCT07CH-300A	CAPACITOR	30PF
C313	NCT07CH-100A	CAPACITOR	10PF
C314	PU59867-200X	TRIMMER CAPACITOR,IND POSITION	20PF
C315	QCFA1CZ-105	CAPACITOR	1μF,16V
C316	QCFA1CZ-105	CAPACITOR	1μF,16V
C317	NEE21AM-475RS	TANTAL CAPACITOR	4.7μF,10V
C318	NCB31EK-153A	CAPACITOR	0.015μF,25V
C319	NCT06CH-270A	CAPACITOR	27PF
C321	PU59867-200X	TRIMMER CAPACITOR,TITLE OSC	20PF
C322	NCT06CH-220A	CAPACITOR	22PF
C323	NEH11HM-225NZ	E CAPACITOR	2.2μF,50V
C324	YU41415-156-X	TANTAL CAPACITOR	15μF
C325	NCT07CH-390A	CAPACITOR	39PF
C326	NCT07CH-390A	CAPACITOR	39PF
C327	QCFA1CZ-105	CAPACITOR	1μF,16V
C328	QCFA1CZ-105	CAPACITOR	1μF,16V
C329	NCT07CH-330A	CAPACITOR	33PF
C330	NCT07CH-330A	CAPACITOR	33PF
C331	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C332	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C333	NCB31EK-103A	CAPACITOR	0.01μF,25V
C334	NCB31EK-103A	CAPACITOR	0.01μF,25V
L301	YU41607-Y	INDUCTOR	
L302	YU41607-Y	INDUCTOR	
L303	YU41607-Y	INDUCTOR	
L304	YU41607-Y	INDUCTOR	
L305	YU41135-390K	COIL	39μH
	or YU40740-390KY	COIL	39μH
	or YU40248-390K	COIL	39μH
L306	YU41135-220K	COIL	22μH
L307	YU41607-Y	INDUCTOR	
⚠ X301	YU40141	CRYSTAL RESONATOR	
X302	YU41490	CERALOCK	
SLD7	YU30439	SHIELD PLATE	
WR1	YU41681-2	CTL-DIS FPC	
WR2	ML-Y00508A	TITLE BOARD WIRE,FOR CN308	
TP301	YU40581	TEST PIN,TITLE PLL ERROR	
TP302	YU40581	TEST PIN,IND CLOCK	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
CN301	YU40684-22	CAP HOUSING,(BOARD TO BOARD)
CN302	YU40684-12	CAP HOUSING,(BOARD TO BOARD)
CN303	YU40684-8	CAP HOUSING,(BOARD TO BOARD)
CN304	YU41356-3-P	CAP HOUSING
CN305	YU41354-8-R	CAP HOUSING
CN306	YU41355-7-R	CAP HOUSING
CN307	YU41355-5-R	CAP HOUSING
CN308	YU41356-4-R	CAP HOUSING
CN309	YU41356-2-P	CAP HOUSING

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AW BOARD ASSEMBLY <24>

PWBA	YB20384A	AW BOARD ASSY	
IC401	T2368FAP	IC	
IC402	MN18888JFFS	IC	
	or MN18P888FAP-F	IC	
IC403	MSM16811MS	IC	
IC404	LM324DB-XE	IC	
IC405	TC4S66F	IC	
IC406	TC4S66F	IC	
IC407	MN12821(QR)	IC	
IC408	TC7S08F	IC	
IC409	UPC319G2	IC	
IC410	LM324DB-XE	IC	
IC411	LM324DB-XE	IC	
IC412	TC4052BF	IC	
IC413	TC7S32F	IC	
Q401	XP5601	TRANSISTOR	
Q402	XP5601	TRANSISTOR	
Q403	2SA1532(BC)	TRANSISTOR	
D401	MA141K	DIODE	
D402	MA141K	DIODE	
R401	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R405	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R407	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R408	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R409	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R410	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R411	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R412	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R413	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R414	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R415	NRSA63J-103N	RESISTOR	10KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R416	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R418	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R419	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R420	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R421	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R422	NRSA63J-101N	RESISTOR	100Ω,1/16W
R423	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R425	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R426	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R427	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R428	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R429	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R430	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R431	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R432	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R433	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R434	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R435	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R436	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R437	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R438	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R439	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R440	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R441	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R442	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R443	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R444	NRSA63J-113N	RESISTOR	11KΩ,1/16W
R445	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R446	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R450	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R451	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R452	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R453	NRSA63J-163N	RESISTOR	16KΩ,1/16W
R454	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R456	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R457	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R458	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R459	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R460	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R461	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R462	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R463	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R464	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R465	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R466	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R467	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R468	NRSA63J-303N	RESISTOR	30KΩ,1/16W
R469	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R470	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R471	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R472	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R473	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R475	NRSA63J-103N	RESISTOR	10KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
RA401	YU41580	RESISTOR ARRAY	
RA402	YU41580	RESISTOR ARRAY	
C401	NEH11CM-106N	E CAPACITOR	10μF,16V
C402	NCB31EK-103A	CAPACITOR	0.01μF,25V
C403	NCB31EK-103A	CAPACITOR	0.01μF,25V
C404	NEH11CM-106N	E CAPACITOR	10μF,16V
C405	QCYA1EK-473	CAPACITOR	0.047μF,25V
C406	QCYA1EK-473	CAPACITOR	0.047μF,25V
C407	QCYA1EK-473	CAPACITOR	0.047μF,25V
C408	QCYA1EK-473	CAPACITOR	0.047μF,25V
C409	NCB31EK-103A	CAPACITOR	0.01μF,25V
C410	NCB31EK-103A	CAPACITOR	0.01μF,25V
C411	NEE20JM-475RS	TANTAL CAPACITOR	4.7μF,6.3V
C412	NCB31EK-103A	CAPACITOR	0.01μF,25V
C413	NEH11CM-106N	E CAPACITOR	10μF,16V
C414	NCB31EK-103A	CAPACITOR	0.01μF,25V
C415	NEE21DM-474RS	TANTAL CAPACITOR	0.47μF,20V
C416	NEE21DM-474RS	TANTAL CAPACITOR	0.47μF,20V
C417	NEE21DM-474RS	TANTAL CAPACITOR	0.47μF,20V
C418	NEE21DM-474RS	TANTAL CAPACITOR	0.47μF,20V
C419	QCYA1EK-473	CAPACITOR	0.047μF,25V
C420	QCYA1EK-473	CAPACITOR	0.047μF,25V
C421	NCB31EK-103A	CAPACITOR	0.01μF,25V
C422	NCB31EK-103A	CAPACITOR	0.01μF,25V
C423	NEH11CM-106N	E CAPACITOR	10μF,16V
C424	NCB31EK-103A	CAPACITOR	0.01μF,25V
C425	NCB31EK-103A	CAPACITOR	0.01μF,25V
C426	NCT07CH-151A	CAPACITOR	150PF
C427	NCT07CH-151A	CAPACITOR	150PF
C428	NCT07CH-151A	CAPACITOR	150PF
C429	NCB31EK-103A	CAPACITOR	0.01μF,25V
C431	NCB31EK-103A	CAPACITOR	0.01μF,25V
C432	NCB31EK-103A	CAPACITOR	0.01μF,25V
C433	NEH11CM-106N	E CAPACITOR	10μF,16V
C434	NCB31EK-103A	CAPACITOR	0.01μF,25V
C435	NCB31EK-103A	CAPACITOR	0.01μF,25V
C436	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C437	NCB31EK-103A	CAPACITOR	0.01μF,25V
C439	NCB31EK-103A	CAPACITOR	0.01μF,25V
C440	NCB31EK-103A	CAPACITOR	0.01μF,25V
C441	NCB31EK-103A	CAPACITOR	0.01μF,25V
C447	NCB31EK-103A	CAPACITOR	0.01μF,25V
C448	NCB31EK-103A	CAPACITOR	0.01μF,25V
L401	YU41135-220K	COIL	22μH
	or YU40740-220K	COIL	22μH
L402	YU41135-220K	COIL	22μH
	or YU40740-220K	COIL	22μH
L403	YU41135-220K	COIL	22μH
	or YU40740-220K	COIL	22μH
L404	YU41135-220K	COIL	22μ
	or YU40740-220K	COIL	22μ

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
⚠ X401	YU41693-P	CERAMIC OSC,OSC401	
SLD1	YQ40538	SHEET	
GND401	YU40581	TEST PIN,GND	
CN402	YU40684-22	CAP HOUSING,(BOARD TO BOARD)	
CN403	YU40096-8	CAP HOUSING	

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AF BOARD ASSEMBLY <25>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20364A-01	AF BOARD ASSY	
IC501	JCY0007-XE	IC	
IC502	MN18888JFES	IC	
	or MN18P888FAP-E	IC	
IC503	MN12821(QR)	IC	
IC504	HA13489MP-XE	IC	
IC505	AN2571FAP	IC	
IC506	JCY0009	IC	
IC507	LM324DB-XE	IC	
IC508	TK10682M	IC	
Q501	XP5601	TRANSISTOR	
Q502	XP5601	TRANSISTOR	
Q503	DTA114EU	TRANSISTOR	
Q504	XP2501	TRANSISTOR	
Q505	DTA114EU	TRANSISTOR	
Q506	XP2401	TRANSISTOR	
Q507	DTA114EU	TRANSISTOR	
D502	MA141WK	DIODE	
R501	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R503	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R504	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R505	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R506	NVP1306-334N	V RESISTOR,GAIN	330KΩ
	or NVP1302-334N	V RESISTOR,GAIN	330KΩ
R507	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R508	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R509	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R510	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R513	NVP1306-222N	V RESISTOR,OFFSET	2.2KΩ
	or NVP1302-222N	V RESISTOR,OFFSET	2.2KΩ
R515	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R516	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R517	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R518	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R519	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R522	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R523	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R524	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R528	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R529	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R530	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R531	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R532	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R533	NRSA63J-821N	RESISTOR	820Ω,1/16W
R534	NRSA63J-221N	RESISTOR	220Ω,1/16W
R535	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R536	NRSA63J-471N	RESISTOR	470Ω,1/16W
R537	NRSA63J-471N	RESISTOR	470Ω,1/16W
R538	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R539	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R540	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R541	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R544	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R545	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R546	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R548	NRSA63J-101N	RESISTOR	100Ω,1/16W
R549	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R550	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R551	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R552	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R560	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R561	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R562	NRSA63J-271N	RESISTOR	270Ω,1/16W
R563	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R564	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R565	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R566	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R567	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R568	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R569	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R570	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R571	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R572	NRSA63J-471N	RESISTOR	470Ω,1/16W
R573	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R574	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R575	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R576	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R578	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R579	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R580	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R581	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R582	NRSA63J-123N	RESISTOR	12KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R583	NRSA63J-202N	RESISTOR	2KΩ,1/16W
R585	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R586	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R587	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R588	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R589	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R592	NRSA63J-821N	RESISTOR	820Ω,1/16W
R594	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R595	NRSA63J-333N	RESISTOR	33KΩ,1/16W
R596	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R597	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R598	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R599	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R800	NVP1306-223N	V RESISTOR,EE LEVEL	22KΩ
	or NVP1302-223N	V RESISTOR,EE LEVEL	22KΩ
R801	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R802	NRSA63J-184N	RESISTOR	180KΩ,1/16W
R803	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R805	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R806	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R807	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R808	NRSA63J-393N	RESISTOR	39KΩ,1/16W
R809	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R810	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R811	NRSA63J-101N	RESISTOR	100Ω,1/16W
R812	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R813	NRVA62D-104N	RESISTOR	100KΩ,1/16W
R814	NRVA62D-822N	RESISTOR	8.2KΩ,1/16W
R815	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R816	NRVA62D-105N	RESISTOR	1MΩ,1/16W
R817	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R818	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R819	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R820	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R821	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R822	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R823	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R824	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R825	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R827	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R830	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R832	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R834	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R835	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R837	NRSA63J-2R2N	RESISTOR	2.2Ω,1/16W
RA501	YU41573-103N	RESISTOR ARRAY	
RA502	YU41573-103N	RESISTOR ARRAY	
RA503	YU41573-103N	RESISTOR ARRAY	
RA504	YU41573-103N	RESISTOR ARRAY	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C501	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	or NEH10JM-226N	E CAPACITOR	22μF,6.3V
C502	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C503	NEH30JM-226N	E CAPACITOR	22μF,6.3V
	or NEH10JM-226N	E CAPACITOR	22μF,6.3V
C504	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C505	NEH31CM-106N	E CAPACITOR	10μF,16V
	or NEH11CM-106N	E CAPACITOR	10μF,16V
C506	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C507	NEH11CM-476NP	E CAPACITOR	47μF,16V
	or NEH31CM-476NP	E CAPACITOR	47μF,16V
C508	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C509	NEE21CM-336RU	TANTAL CAPACITOR	33μF,16V
C510	NCT07CH-471A	CAPACITOR	470PF
C511	NCR21CK-473A	CAPACITOR	0.047μF,16
C512	NEE20GM-475RS	TANTAL CAPACITOR	4.7μF,4.0
C513	NCR21CK-473A	CAPACITOR	0.047μF,16
C514	NCB31HK-102A	CAPACITOR	0.001μF,50
C515	NCT07CH-5R0A	CAPACITOR	5PF
C516	NCT07CH-560A	CAPACITOR	56PF
C517	NCF31CZ-104A	CAPACITOR	0.1μF,16
C518	NCB31EK-103A	CAPACITOR	0.01μF,25
C519	NCT07CH-220A	CAPACITOR	22PF
C520	NCB31EK-103A	CAPACITOR	0.01μF,25
C521	NCR21CK-473A	CAPACITOR	0.047μF,16
C522	NCT07CH-151A	CAPACITOR	150PF
C523	NCT07CH-121A	CAPACITOR	120PF
C524	QCYA1HK-103	CAPACITOR	0.01μF,50
C525	NCB31HK-102A	CAPACITOR	0.001μF,50
C526	QCYA1HK-273	CAPACITOR	0.027μF,50
C529	QCYA1HK-273	CAPACITOR	0.027μF,50
C530	NCT07CH-101A	CAPACITOR	100P
C531	QCYA1HK-273	CAPACITOR	0.027μF,50
C532	NCT07CH-101A	CAPACITOR	100P
C533	NCR21CK-473A	CAPACITOR	0.047μF,16
C534	NCR31CK-223A	CAPACITOR	0.022μF,16
C535	NCR21CK-473A	CAPACITOR	0.047μF,16
C536	NCR31CK-223A	CAPACITOR	0.022μF,16
C537	NCR21CK-473A	CAPACITOR	0.047μF,16
C538	NCR31CK-223A	CAPACITOR	0.022μF,16
C539	NCT07CH-101A	CAPACITOR	100P
C540	NCB31EK-103A	CAPACITOR	0.01μF,25
C541	NCT07CH-121A	CAPACITOR	120P
C542	NCT07CH-330A	CAPACITOR	33P
C543	NCT07CH-151A	CAPACITOR	150P
C544	NCF31CZ-104A	CAPACITOR	0.1μF,16
C547	NCF31CZ-104A	CAPACITOR	0.1μF,16
C548	NCF31CZ-104A	CAPACITOR	0.1μF,16
C549	NCF31CZ-104A	CAPACITOR	0.1μF,16
C550	NCF31CZ-104A	CAPACITOR	0.1μF,16
C551	NCT07CH-151A	CAPACITOR	150P
C552	NCT07CH-151A	CAPACITOR	150P
C553	NCF31CZ-104A	CAPACITOR	0.1μF,16
C555	NCF31CZ-104A	CAPACITOR	0.1μF,16
C560	NEN11EM-226NZ	E CAPACITOR	22μF,2

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C561	QCY81EK-104	CAPACITOR	0.1μF,25V
C562	QCYA1EK-104	CAPACITOR	0.1μF,25V
C563	QCYA1EK-104	CAPACITOR	0.1μF,25V
C564	NCR21CK-473A	CAPACITOR	0.047μF,16V
C565	NCR21CK-473A	CAPACITOR	0.047μF,16V
C566	NCR21CK-473A	CAPACITOR	0.047μF,16V
C568	NCB31HK-102A	CAPACITOR	0.001μF,50V
C569	NEE21VM-224RS	TANTAL CAPACITOR	0.22μF,35V
C570	NEE21CM-105RS	TANTAL CAPACITOR	1μF,16V
C571	NEE21VM-224RS	TANTAL CAPACITOR	0.22μF,35V
C572	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C573	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C574	NCR31CK-183A	CAPACITOR	0.018μF,16V
C575	NCR31CK-183A	CAPACITOR	0.018μF,16V
C576	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C577	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C579	NCT07CH-100A	CAPACITOR	10PF
C580	NCB31HK-102A	CAPACITOR	0.001μF,50V
L501	YU40740-470K	COIL	47μH
	or YU41135-470	COIL	47μH
L502	YU40740-470K	COIL	47μH
	or YU41135-470	COIL	47μH
L503	YU40740-470K	COIL	47μH
	or YU41135-470	COIL	47μH
L504	YU40740-470K	COIL	47μH
	or YU41135-470	COIL	47μH
L505	PU58201-330K	COIL	33μH
L506	PU58201-121K	COIL	120μH
BPF501	YU40700-R	BAND PASS FILTER	
BPF502	YU41033-P	BAND PASS FILTER	
⚠ X501	YU41693-P	CERAMIC OSC,SOC501	
TP501	YU40581	TEST PIN,HOLE ELEMENT AMP OUT	
CN501	YU40682-16	CAP HOUSING,(BOARD TO BOARD)	
CN502	YU40682-8	CAP HOUSING,(BOARD TO BOARD)	
CN503	YU40096-6	CAP HOUSING	
CN504	YU40096-8	CAP HOUSING	
CN505	YU40096-4B	CAP HOUSING	
CN506	YU40096-2	CAP HOUSING	
CN507	YU40096-3	CAP HOUSING	
CN508	YU40096-4	CAP HOUSING	
CN509	YU40096-4Y	CAP HOUSING	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	

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TITLE SWITCH BOARD ASSEMBLY <27>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20356A-02	TITLE SW BOARD ASSY	
D741	SLM-125VWS-X	LED	
D742	SLM-125VWS-X	LED	
D743	MA8075	DIODE	
D744	MA8075	DIODE	
R741	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R742	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R743	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R744	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R745	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R746	NRSA63J-0R0A	RESISTOR	0Ω,1/16W
R748	NRSA63J-471N	RESISTOR	470Ω,1/16W
C741	NCF31CZ-104A	CAPACITOR	0.1μF,16V
SW741	PESW0570-Z	TACT SWITCH,TITLE FADER	
SW742	PESW0570-Z	TACT SWITCH,MEMORY	
SW743	PESW0570-Z	TACT SWITCH,TITLE ON/OFF	
SW744	PESW0570-Z	TACT SWITCH,COLOR SELECT	
SW745	PESW0570-Z	TACT SWITCH,PAGE SELECT	
SW746	PESW0570-Z	TACT SWITCH,IMAGE REVERSE	
CN741	YU40096-4	CAP HOUSING	

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CAMERA SWITCH BOARD ASSEMBLY <28>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	YB20375A-02	CAMERA SW BOARD ASSY	
D701	MA8075	DIODE	
D702	MA8075	DIODE	
D703	MA8075	DIODE	
D704	MA8075	DIODE	
D705	MA8075	DIODE	
D706	MA8075	DIODE	
D707	MA8075	DIODE	
D708	MA8075	DIODE	
R701	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R702	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R703	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R704	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R705	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R707	NRSA63J-471N	RESISTOR	470Ω,1/16W
R708	NRSA63J-471N	RESISTOR	470Ω,1/16W
R709	NRSA63J-471N	RESISTOR	470Ω,1/16W
R710	NRSA63J-471N	RESISTOR	470Ω,1/16W
B701	QRSA08J-0R0YN	RESISTOR	0Ω,1/10W
C701	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C702	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C703	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C704	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C705	NCF31CZ-104A	CAPACITOR	0.1µF,16V
SW701	PESW0570-Z	TACT SWITCH,FULL AUTO	
SW702	PESW0570-Z	TACT SWITCH,FOCUS	
SW703	PESW0570-Z	TACT SWITCH,SHUTTER	
SW704	PESW0570-Z	TACT SWITCH,WHITE BALANCE	
SW705	PESW0570-Z	TACT SWITCH,DISPLAY	
SW706	PESW0570-Z	TACT SWITCH,FADER	
SW707	PESW0570-Z	TACT SWITCH,IRIS –	
SW708	PESW0570-Z	TACT SWITCH,IRIS +	
SW709	PESW0570-Z	TACT SWITCH,BLC	
SW710	PU59676	TACT SWITCH,SUB TRIG	
WR1	YU41680-3	CTL-CSW FPC	

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DISPLAY SWITCH BOARD ASSEMBLY <29>

PWBA	YB20357A-02	DISPLAY SW BOARD ASSY	
D771	MA8075	DIODE	
D772	MA8075	DIODE	
D773	MA8075	DIODE	
D774	MA8075	DIODE	
R771	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R772	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R773	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R774	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R777	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R778	NRSA63J-471N	RESISTOR	470Ω,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C771	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C772	NCF31CZ-104A	CAPACITOR	0.1µF,16V
C773	NCF31CZ-104A	CAPACITOR	0.1µF,16V
SW771	PESW0570-Z	TACT SWITCH,SET +	
SW772	PESW0570-Z	TACT SWITCH,SET –	
SW773	PESW0570-Z	TACT SWITCH,SELECT	
SW774	PESW0570-Z	TACT SWITCH,MODE	
SW775	PESW0570-Z	TACT SWITCH,REC TIME RESET	
SW776	YU40111	SLIDE SWITCH	
CN771	YU41354-5	CAP HOUSING	
CN772	YU41356-2	CAP HOUSING	

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UPPER DRUM BOARD <31>

PWBA	YDM3050	UPPER DRUM BOARD

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E.VF BOARD ASSEMBLY <50>

⚠ PWBA	YQ30723-101	E.VF BOARD ASSY
⚠ FBT1	YQ30723-114	F.BACK TRANS
HLC1	YQ30723-113	H.L.C(COIL)
⚠ IC1	AN2512S	IC
IC2	AN78L05M	IC
D01	DC8010	DIODE
	or MA151WK	DIODE
	or DAN202K	DIODE
D02	MA152WK	DIODE
D03	1SS244	DIODE
D04	MA157A	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	D05	ERA22-08	DIODE	
	D06	ESJA04-02	DIODE	
	VR1	YQ30723-201	V.RESISTOR,V.SIZE	100Ω
	VR2	YQ30723-202	V.RESISTOR,H.HOLD	47KΩ
	VR3	YQ30723-203	V.RESISTOR,CONTRAST	10KΩ
	VR4	YQ30723-204	V.RESISTOR,BRIGHT	1MΩ
	R01	QRSA08J-363YM	RESISTOR	36KΩ,1/10W
	R02	QRSA08J-3R9YN	RESISTOR	3.9Ω,1/10W
		or QRSA08J-5R1YN	RESISTOR	5.1Ω,1/10W
		or QRSA08J-6R2YN	RESISTOR	6.2Ω,1/10W
		or QRSA08J-7R5YN	RESISTOR	7.5Ω,1/10W
	R03	QRSA08J-390YN	RESISTOR	39Ω,1/10W
	R04	QRSA08J-514YN	RESISTOR	510KΩ,1/10W
	R05	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R06	QRSA08J-242YN	RESISTOR	2.4KΩ,1/10W
	R07	QRSA08J-220YN	RESISTOR	22Ω,1/10W
	R08	QRSA08J-125YN	RESISTOR	1.2MΩ,1/10W
	R09	QRSA08J-113YN	RESISTOR	11KΩ,1/10W
	R10	QRSA08J-512YN	RESISTOR	5.1KΩ,1/10W
	R11	QRSA08J-202YN	RESISTOR	2KΩ,1/10W
	R12	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R13	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R14	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
	R15	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R16	QRSA08J-200YN	RESISTOR	20Ω,1/10W
		or QRSA08J-240YN	RESISTOR	24Ω,1/10W
		or QRSA08J-150YN	RESISTOR	15Ω,1/10W
	R17	QRS188J-335YN	RESISTOR	3.3MΩ,1/8W
	R18	QRS188J-335YN	RESISTOR	3.3MΩ,1/8W
	R19	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
	R20	QRSA08J-224YN	RESISTOR	220KΩ,1/10W
	R21	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	C01	YQ03723-301	CAPACITOR	0.1μF,25V
	C02	QCF81CZ-105	CAPACITOR	1μF,16V
	C03	QCYA1EK-223	CAPACITOR	0.022μF,25V
	C04	YQ30723-302	TANTAL CAPACITOR	1μF,10V
	C05	QETA1AM-107	E CAPACITOR	100μF,10V
	C06	QCF81CZ-105	CAPACITOR	1μF,16V
	C07	YQ30723-303	CAPACITOR	3900PF,200V
	C08	QETA1AM-107	E CAPACITOR	100μF,10V
	C09	QETA1-AM107	E CAPACITOR	100μF
	C10	YQ30723-304	CAPACITOR	1500PF,500V
	C11	QER41HM-475	E CAPACITOR	4.7μF,50V
	C12	QEK41HM-335	E CAPACITOR	3.3μF,50V
	C13	QCTA1CH-271Z	CAPACITOR	270PF,16V
	C14	QCYA1EK-333	CAPACITOR	0.033μF,25V
	C15	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C16	QEJ40JM-686	TANTAL E CAPACITOR	68μF,6.3V
⚠	L01	YQ30723-115	COIL	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	TR1	2SC2812	TRANSISTOR
		or 2SD601A	TRANSISTOR
		or 2SC3052	TRANSISTOR
		or 2SC2412K	TRANSISTOR
⚠	TR2	2SC4132-273	TRANSISTOR
⚠		or 2SD1615A	TRANSISTOR
	WR1	YQ30723-116	VF CABLE
	CN1	YU30315-210	CAP HOUSING
	CN2	YU30315-210	CAP HOUSING
	CN3	PU58654-3	CAP HOUSING
	CN4	YQ30723-111	CRT CONNECTOR
	TF1	YQ30723-117	THERMISTOR

SECTION 8
TECHNICAL INFORMATIONS

8.1 M-CTL CPU (IC301) PIN FUNCTIONS

Pin No.	Symbol	Label	I/O	Description	Pin No.	Symbol	Label	I/O	Description
1	P63	NORMAL AUDIO MUTE	O	Normal Audio Mute Control (Mute ON : H)	37	P50	TU SENS	I	Reel Rotation Detect.
2	P62	NORMAL BIAS (L)	O	Normal Audio REC Mode : L	38	P17	SP/EP SW	I	EP Mode: L, SP Mode: H
3	P61	NORMAL AUDIO PB	O	Normal Audio PB Mode : H	39	P16	CAS SW (L)	I	Housing Lock: H
4	P60	END LED	O	End Sensor Control	40	P15	CAM B	I	EJECT, STOP1, FF, REC, REC PAUSE, REC LOCK, STOP2, PLAY, REC, STILL CAM A: L, L, L, L, M, M, M, L, L, L CAM B: M, L, L, L, L, L, M, M, M, M
5	AN7	BATT CHK	I	Power Voltage Check	41	P14	CAM A	I	
6	AN6	END SENS	I	Tape End Detect	42	P13	AUDIO OUT SEL	I	Audio Output Select, Hi-Fi, MIX: H, Normal: L
7	AN5	AVG FM	I	Average FM Input (for Auto Tracking)	43	P12	EXT RM (L)	I	Not Used
8	AN4	DEW	I	Dew Sensed: L, Normal: H	44	P11	H DET (L)	I	Hi-Fi REC: L, Non Hi-Fi REC: H
9	AN3	C. COVER SW	I	PB: L, CAMERA: H	45	P10	S. LOCK	I	Servo Lock: L
10	AN2	NTSC (L)	I	NTSC Mode : L	46	P75	HiFi AUDIO MUTE	O	Audio Mute Control, Mute ON : H
11	AN1	TEST 0	I	Test Mode : L	47	P74	OS ON (L)	O	On-Screen ON : L (Monitor Output)
12	AN0	S. VHS	I	VHS Mode: L, S-VHS Mode: H	48	P73	L. DATA	O	Serial Data Transmission to Operation Unit
13	P71	S. CLK	O	Serial Data Transfer Clock (To Servo)	49	P72	L. CLK	O	Serial Data Transfer Clock to Operation Unit
14	P70	S. DATA	O	Serial Data Transmission to Servo	50	P07	V.A. MUTE	O	Video/Audio Mute Control, Mute ON : H
15	RDY	C. RDY (L)	I	Camera Serial Ready : L	51	P06	V. PB	O	PB Mode : H
16	CLK	C. SCLK	O	Serial Data Transfer Clock (To Camera)	52	P05	HiFi REC MUTE (L)	O	Audio Mute Control, Mute ON : L
17	S OUT	VC. DATA	O	Serial Data Transmission to Camera	53	P04	V. SW OFF	O	Video SW Pulse Control (SW Pulse OFF: H)
18	S IN	CV. DATA	I	Serial Data Reception from Camera	54	P03	S. ENABLE	I	Not used in general
19	CNTR	CAP FG	I	For SP/EP Discrimination, Tape End Detection	55	P02	A. FM (L)	O	FM Select (Audio FM : L)
20	INT 2	PWR SW (L)	I	Power SW Input (‾‾__), REMOTE DATA INPUT	56	P01	V. REC MUTE (L)	O	Video REC Mute Control, Mute ON : L
21	P31	M STOP	I	Memory Stop : H	57	P00	V. REC (L)	O	Video REC ON : L
22	P30	L. RDY (L)	I	Operation Ready : L	58	P27	LOAD REV	O	Loading Motor Rotation Direction Control
23	INT 1	D. FF	I	Drum Rotation Detect, End LED ON Timing	59	P26	LOAD FWD	O	
24	CNVss	GND	–	GND	60	P25	FLY H ON	O	FE Head Control, ON : H
25	RESET	RESET (L)	I	Reset : L	61	P24	CTL ERS	O	CTL ERS Control, ON : H
26	X1	XTAL	I	4 MHz Clock	62	P23	REMOTE	O	Remote Control, Remote ON : H
27	X0	XTAL	O		63	P22	ALM ON	O	Alarm ON : H
28	ϕ	NC	–	NC	64	P21	C. CPU ON (L)	I	Camera Control, Camera CPU ON : L
29	Vss	GND	–	GND	65	Vss	GND	–	GND
30	P57	V. SWD	I	For Video SW Pulse D	66	P20	D. PWR ON	I	Power Control, Deck Power ON : H
31	P56	REC SAFE SW	I	Safety Tab Detect, REC SAFE : H	67		VCC	I	AL 5 V
32	P55	PB CTL P	I	SP/EP Discrimination, for Z.F.E.	68		A Vss	–	GND
33	P54	SUP SENS	I	Reel Rotation Detection, Tape Remainder Det.	69		A VREF	I	REG 5 V
34	P53	A. FF	I	Audio FF Input	70	DA	CPU REF	O	Capstan Motor Drive Voltage Output
35	P52	A. SWB	I	Audio SW Pulse B Input	71	PWM	NC	–	NC
36	P51	EJECT SW (L)	I	Eject SW Detect, EJECT : L	72	P64	H PB (L)	O	HiFi PB Control, H PB Mode : L

Table 8-1 IC301 pin functions

8.2 EMERGENCY MODE TABLE

When something abnormal occurs in operation, the LCD displays an emergency warning corresponding to a symptom.

LCD Display	Symptom	Description
◁◁	CAP FG EMG	'Capstan FG emergency' detected in ASB
▶ ▶▶	DRUM EMG	'Drum emergency' detected in drum rotation
▶▶	CTL P EMG	'Control pulse emergency' detected in writing VISS
❚❚	UNLOAD EMG	'Unloading emergency' detected in unloading
❚❚▶	LOAD EMG	'Loading emergency' detected in loading
▶ ◀◀	REEL EMG	'Reel emergency' detected in reel rotation

✳ : Blinking

Table 8-2 Emergency mode indications

8.3 SERVO CPU ($\boxed{0}\boxed{1}$ MAIN IC101) PIN FUNCTIONS

Pin No.	Label	I/O	Description	Pin No.	Label	I/O	Description
1	ADV	O	Tracking correction pulse output	29	VDD	–	System power source
2	CAP CTL	O	Control mode switching (CPU/SERVO mode)	30	M-D	O	Drum phase monitor output
3	SB	O	Mode switching (SP mode) signal output	31	M-C	O	Capstan phase monitor output
4	FM EMV	I	Internal sync signal switching (sync/non-sync)	32	SEL 2	I	Setup terminal (Head setting)
5	CPU	O	Capstan phase control PWM output	33	SEL 1	I	(Same as above)
6	CFV	O	Capstan speed control PWM output	34	NC	–	NC
7	BRK	O	Capstan brake control	35	NC	–	NC
8	FWD	O	Normal/Reverse rotation of capstan	36	NC	–	NC
9	WIDE	O	CTL pulse rewrite control signal	37	NC	–	NC
10	WRITE	O	(Same as above)	38	NC	–	NC
11	DUTY	O	REC control duty control	39	D ON	O	Drum on input
12	TEST	O	TEST terminal (NC)	40	SW MM	I/O	PG MM terminal
13	FOSC	O	Reference signal input	41	D FG/PG	I	Drum PG/FG input
14	GND	–	GND	42	GND	–	GND
15	YNR	O	YNR pulse output	43	DPV	O	Drum phase control PWM output
16	VP ON	O	V pulse on/off mode control	44	DFV	O	Drum speed control PWM output
17	VP	O	V sync (false pulse) output	45	GD	O	Drum FG error correction timing output
18	SYNC	I	V sync input	46	ASWD	O	Audio head switching pulse output (A SW D)
19	FRAME	I	Frame pulse input	47	ASWC	O	" (A SW C)
20	AV REC	I	Camera/External input mode switching	48	ASWB	O	" (A SW B)
21	S OUT	O	Servo lock control	49	ASWA	O	" (A SW A)
22	C FG	I	Capstan FG input	50	A FF	O	" (A FF)
23	CTL P	I	Control pulse input	51	VSWD	O	Video head switching pulse output (R SW D)
24	D FF	O	Drum flipflop	52	VSWC	O	" (V SW C)
25	S CLK	I	Serial data input	53	VSWB	O	" (V SW B)
26	S DATA	I	Data transfer clock input	54	VSWA	O	" (V SW A)
27	EP DL	–	NC	55	H FF	O	" (H FF)
28	PW ON	I	Reset terminal	56	V FF	O	" (V FF)

Table 8-3 IC101 pin functions

8.4 CAMERA CPU (2 3 CTL IC301) PIN FUNCTIONS

PIN No.	SYMBOL	SIGNAL NAME	IN/OUT	CONTENTS
1	P42	LITHIUM BATT DOWN (L)	IN	
2	P41	REC TIME SW ON (H)	IN	
3	P40	LOW LIGHT (L)	IN	
4	IN3	JIG (L)	IN	Not used
5	IN2	OPERATION SW3	IN	SET +, –, SELECT, MODE, REC TIME RESET
6	IN1	OPERATION SW2	IN	TITLE FADER, MEMORY, TITLE ON/OFF, COLOR, PAGE, REVERSE
7	IN0	OPERATION SW1	IN	FULL AUTO, FOCUS, SHUTTER, W. BAL, DISPLAY, FADER
8	Vcc	UNSW 5V	IN	
9	P57	AGC ON (H)	OUT	IRIS OPEN (H)
10	P56	TITLE WRITE ENABLE (L)	OUT	
11	P55	OSD STROBE (H)	OUT	
12	P54	VTR SERIAL READY (L)	OUT	
				PAGE 1 2 3 4
13	P53	TITLE PAGE-2	OUT	L L H H
14	P52	TITLE PAGE-1	OUT	L H L H
15	P51	CAMERA POWER ON (L)	OUT	
16	P50	HD	IN	
17	P37	OSD CLOCK	OUT	OSD DATA TRANSFER CLOCK
18	P36	VTR SERIAL CLOCK	IN	SERIAL DATA TRANSFER CLOCK BETWEEN VTR and CAMERA
19	P35	VTR SERIAL DATA	OUT	CAMERA DATA OUTPUT
20	P34	VTR SERIAL DATA	IN	VTR DATA INPUT
21	P33	JIG (L)	IN	Not used
22	INT2	DECK POWER ON (L)	IN	
23	XIN	32.768kHZ CLOCK	IN	DATE/TIME CLOCK
24	XOUT	32.768kHZ CLOCK	OUT	
25	INT1	POWER DOWN (L)	IN	
26	CNVss	GND	–	
27	RESET	RESET (L)	IN	
28	XIN	4MHz CLOCK	IN	SYSTEM CLOCK
29	XOUT	4MHz CLOCK	OUT	
30	Vss	GND	–	
31	P17	FADER CTL-1	OUT	LOW WHEN TITLE FADE
32	P16	FADER CTL-2	OUT	HIGH WHEN TITLE & COLOR FADE
33	P15	OSD DATA LOAD (L)	OUT	
34	P14	FADER CTL-3	OUT	HIGH WHEN AUDIO FADE
				W. BAL MODE INDOOR OUTDOOR FL AUTO
35	P13	W. BAL-2	OUT	L L H H
36	P12	W. BAL-1	OUT	L H L H
37	P11	TALLY LED ON (L)	OUT	
38	P10	AF CLOCK	OUT	SERIAL DATA TRANSFER CLOCK BETWEEN AF & CTL
39	P07	TITLE RED	OUT	TITLE & FADER COLOR SELECT
40	P06	TITLE GREEN	OUT	
41	P05	TITLE BLUE	OUT	
42	P04	TITLE REVERSE (L)	OUT	
43	P03	TITLE ON (H)	OUT	
44	P02	BLC ON (L)	OUT	
45	P01	TITLE MEMORY (L)	OUT	
46	P00	TITLE CLEAR (L)	OUT	
47	P27	FADER-7	OUT	FADE SIGNAL OUTPUT
48	P26	FADER-6	OUT	
49	P25	FADER-5	OUT	
50	P24	FADER-4	OUT	
51	P23	FADER-3	OUT	
52	P22	FADER-2	OUT	
53	P21	FADER-1	OUT	
54	P20	FADER-0	OUT	
55	ϕ	NC	–	
56	P77	AF READY (H)	IN	FOR DATA TRANSFER BETWEEN AF & CTL
57	P76	OSD BUSY (H)	IN	FOR OSD CONTROL
58	P75	TRIGGER SW	IN	ON (L) / OFF (H)
59	P74	AF DATA IN	IN	OP BLOCK DATA INPUT
60	P73	IRIS – SW	IN	ON (L) / OFF (H)
61	P72	IRIS + SW	IN	ON (L) / OFF (H)
62	P71	TITLE MEMORY END (L)	IN	
63	P70	AF DATA OUT	OUT	CAMERA MODE DATA OUTPUT
64	P67	OSD DATA-7	OUT	OSD DATA OUTPUT
65	P66	OSD DATA-6	OUT	
66	P65	OSD DATA-5	OUT	
67	P64	OSD DATA-4	OUT	
68	P63	OSD DATA-3	OUT	
69	P62	OSD DATA-2	OUT	
70	P61	OSD DATA-1	OUT	
71	P60	OSD DATA-0	OUT	
72	NC	NC	–	
73	AVcc	5V	–	
74	Vref	5V	–	
75	AVss	GND	–	
76	P47	VISS SW	IN	ON (L) / OFF (H)
77	P46	QUICK REVIEW SW	IN	ON (L) / OFF (H)
78	P45	RETAKE – SW	IN	ON (L) / OFF (H)
79	P44	RETAKE + SW	IN	ON (L) / OFF (H)
80	P43	BLC SW	IN	ON (L) / OFF (H)

Table 8-4 IC301 pin functions

8.5 TITLE MEMORY CONTROLLER (2 3 CTL IC303) PIN FUNCTIONS

PIN No.	SIGNAL NAME	IN/OUT	CONTENTS
1	A6	OUT	S. RAM ADDRESS CONTROL
2	A7	OUT	
3	Vss	–	GND
4	NC	–	
5	A12	OUT	S. RAM ADDRESS CONTROL
6	A14	OUT	
7	NC	–	
8	NC	–	
9	BLUE BLANKING	OUT	BLANKING COLOR SIGNAL OUTPUT
10	GREEN BLANKING	OUT	
11	RED BLANKING	OUT	
12	COMP BLANKING	IN	H: BLANKING
13	FRING	OUT	H: FRING
14	KEY PULSE	OUT	H: TITLE, L: THROUGH
15	NC	–	
16	VD	IN	VERTICAL SYNC
17	HD	IN	HORIZONTAL SYNC
18	YHL	IN	TITLE Y SIGNAL
19	NC	–	
20	NTSC (L) / PAL (H)	IN	
21	NC	–	
22	Vss	–	GND
23	PHASE COMP OUT	OUT	312fH OSC PLL ERROR SIGNAL
24	NC	–	
25	OSC1	IN	312fH
26	OSC2	OUT	312fH
27	Vdd	–	5 V
28	NC	–	
29	NC	–	
30	NC	–	
31	KEY CTL	IN	H: FRING, L: NORMAL
32	POWER ON RESET	IN	L: RESET
33	Vss	–	GND
34	MEMORY END (L)	OUT	
35	MEMORY/CLEAR (L)	OUT	
36	MEMORY (L)	IN	
37	CLEAR (L)	IN	
38	REVERSE (L)	IN	KEY PULSE REVERSE COMMAND
39	NC	–	
40	TITLE ON (H)	IN	
41	REAL (H)	IN	LOW Fixed
42	PAGE2	IN	TITLE PAGE SELECT
43	PAGE1	IN	
44	NC	–	
45	Vss	–	GND
46	WRITE ENABLE (L)	IN	For S. RAN
47	RED IN	IN	TITLE COLOR SELECT
48	GREEN IN	IN	
49	BLUE IN	IN	
50	RESET (L)	IN	HIGH Fixed
51	NC	–	
52	S. RAM WE (L)	OUT	For S. RAM WRITE CONTROL
53	A13	OUT	S. RAM ADDRESS CONTROL
54	Vdd	–	5 V
55	A8	OUT	S. RAM ADDRESS CONTROL
56	A9	OUT	
57	A11	OUT	
58	NC	–	
59	S. RAM OE (L)	OUT	For S. RAM READ CONTROL
60	A10	OUT	S. RAM ADDRESS CONTROL
61	S. RAM CS (L)	OUT	For S. RAM READ/WRITE CONTROL
62	Vss	–	GND
63	NC	–	
64	IO4	IN/OUT	TITLE DATA
65	IO5	IN/OUT	
66	IO6	IN/OUT	
67	IO7	IN/OUT	
68	IO8	IN/OUT	
69	A1	OUT	S. RAM ADDRESS CONTROL
70	A0	OUT	
71	IO1	IN/OUT	TITLE DATA
72	Vdd	–	5 V
73	IO2	IN/OUT	TITLE DATA
74	IO3	IN/OUT	
75	NC	–	
76	A2	OUT	S. RAM ADDRESS CONTROL
77	A3	OUT	
78	A4	OUT	
79	NC	–	
80	A5	OUT	S. RAM ADDRESS CONTROL

Table 8-5 IC303 pin functions

8.6 WHITE BALANCE CPU (24 AW) PIN FUNCTIONS

PIN No.	SYMBOL	SIGNAL NAME	IN/OUT	CONTENTS				
1	ADC2	G	IN	For LOW LIGHT DETECT				
2	ADC1	B/G	IN	AW SENSOR INPUTS				
3	ADC0	R/G	IN					
4	VREF−	NC	–					
5	S/H2	ADSH	–	CAPACITOR for A/D CONV				
6	AVSS	GND	–					
7	P67	JIG ENABLE	OUT	For E.VR ADJUSTER				
8	P66	JIG BUSY	OUT					
9	P65	SERIAL SW	OUT	AF DATA IN (H) / E VR JIG MODE (L)				
10	P64	MEMORY CS	OUT	For EEPROM CONTROL				
11	P63	EVR CS	OUT	For E.VR & EEPROM CONTROL				
12	P62	EVR PE	OUT					
13	P61	MEMORY/EVR DC	OUT					
14	P60	MEMORY/EVR CLOCK	OUT					
15	EXI	GND	–					
16	P57	R OFFSET-3	OUT	AW SENSOR RED OFFSET				
17	P56	R OFFSET-2	OUT					
18	P55	R OFFSET-1	OUT					
19	P54	R OFFSET-0	OUT					
20	P53	B OFFSET-3	OUT	AW SENSOR BLUE OFFSET				
21	P52	B OFFSET-2	OUT					
22	P51	B OFFSET-1	OUT					
23	P50	B OFFSET-0	OUT					
24	RST−	RESET (L)	IN					
25	OSC1	8MHz	IN	SYSTEM CLOCK				
26	OSC2	8MHz	OUT					
27	Vss	GND	–					
28	P23	(H)	IN					
29	P27	NC	–					
30	P26	VD	IN	VERTICAL SYNC				
31	P25	(H)	IN					
32	P24	VD	IN	VERTICAL SYNC				
33	P22	(H)	–					
34	P21	(H)	–					
35	P20	(H)	–					
36	P07	AF/JIG CLOCK	IN	For E.VR ADJUSTER & AF DATA TRANSFER				
37	P06	AF/JIG DATA IN	IN					
38	P05	JIG DATA OUT	OUT					
39	P01	NC	–					
40	P00	NC	–					
41	P47	Y CORRECT (L)	OUT	OUTDOOR (L)				
42	P46	NC	–					
43	P45	NC	–					
44	P44	W DET	OUT	YL DARK CLIP 30% (H) / 0% (L)				
45	P43	GAIN D	OUT	LOW Fixed				
46	P42	GAIN A	OUT	YL DARK CLIP 50% (H) / 30% (L)				
			–	64-PIN IN	R-Y	B-Y	YL	
47	P41	B	OUT		L	H	X	
48	P40	A	OUT		L	L	H	
			–	WB MODE	INDOOR	OUTDOOR	FL	AUTO
49	P77	WHITE BAL SW-B	IN		L	LH	H	H
50	P76	WHITE BAL SW-A	IN		L	H	L	H
51	P75	CLOSED LOOP SW	IN					
52	P74	JIG MODE SW	IN	LOW: E.VR JIG MODE				
53	P73	JIG RESERVED	IN	HIGH Fixed				
54	P72	(H)	–					
55	P71	(H)	–					
56	P70	MEMORY/EVR DI	IN					
57	VDD	5V	–					
58	AVDD	5V	–					
59	VREF+	4V	–	For A/D, D/A CONV				
60	DAC1	B GAIN	OUT	B GAIN CTL VOLTAGE				
61	S/H1	DASHI	–	S/H CAPACITOR for DAC1				
62	DAC0	R GAIN	OUT	R GAIN CTL VOLTAGE				
63	S/H0	DASHO	–	S/H CAPACITOR for DAC0				
64	ADC3	R-Y/Y/YL	IN	CLOSED LOOP COMP SIGNAL				

Table 8-6 IC402 pin functions

8.7 AF CPU ([2][5] AF IC502) PIN FUNCTIONS

PIN No.	SYMBOL	SIGNAL NAME	IN/OUT	CONTENTS
1	ADC2	ZOOM ENCODER	IN	DETECTING ZOOM LENS POSITION
2	ADC1	IRIS SENSOR	IN	DETECTING IRIS SIZE
3	ADC0	AF SIGNAL	IN	DETECTING Y SIGNAL CONTRAST
4	VREF–	1V	–	
5	S/H2	ADSH	–	S/H CAPACITOR for A/D CONV.
6	AVSS	GND	–	
7	P67	MANUAL FOCUS RESET	OUT	RESET (L) AT 1 V INTERVALS
8	P66	AF MOTOR PS	OUT	POWER SAVE STOP (H)
9	P65	IRIS DUMPER CTL	OUT	AUTO (L) / MANUAL (H)
10	P64	NC	–	
11	P63	AF MOTOR FAR	OUT	AF MOTOR DRIVE (L)
12	P62	AF MOTOR NEAR	OUT	
13	P61	AF PROCESSOR CLK	OUT	AF PROCESSOR CONTROL DATA
14	P60	AF PROCESSOR DATA	OUT	
15	EXI	GND	–	
16	P57	ZOOM WIDE (H)	OUT	ZOOM MOTOR CONTROL
17	P56	ZOOM TELE (H)	OUT	
18	P55	∞SENSOR ON (L)	OUT	
19	P54	MANUAL FOCUS ON (L)	OUT	
20	P53	CTL READY	–	
21	P52	SSG RESET (L)	OUT	ELECTRONIC SHUTTER MODE DATA OUTPUT
22	P51	SSG CLOCK	OUT	
23	P50	SSG DATA	OUT	
24	RST–	RESET (L)	IN	
25	OSC1	8MHz	IN	SYSTEM CLOCK
26	OSC2	8MHz	OUT	
27	Vss	GND	–	
28	P23	NC	–	
29	P27	HD	IN	HORIZONTAL SYNC
30	P26	NC	–	
31	P25	NC	–	
32	P24	VD	IN	VERTICAL SYNC
33	P22	AF WINDOW PULSE	OUT	Y CONTRAST SIGNAL BLANKING PULSE
34	P21	FL FLICKER PULSE	IN	DETECTING FL FLICKER
35	P20	HD	IN	HORIZONTAL SYNC
36	P07	CTL CLOCK	OUT	CTL-AF DATA TRANSFER
37	P06	CTL-AF DATA	IN	CTL-AF: MODE DATA INPUT
38	P05	AF-CTL DATA	OUT	AF-CTL: OP BLOCK DATA OUTPUT
39	P01	NC	–	
40	P00	NC	–	
41	P47	ADJUST (L)	IN	
42	P46	ZOOM SPEED UP (L)	IN	
43	P45	ZOOM WIDE SW ON (L)	IN	
44	P44	ZOOM TELE SW ON (L)	IN	
45	P43	MANUAL +2 (L)	IN	Not used
46	P42	MANUAL +1 (L)	IN	MANUAL FOCUS FAR (L) AT 1V INTERVALS
47	P41	MANUAL –1 (L)	IN	MANUAL FOCUS NEAR (L) AT 1V INTERVALS
48	P40	MANUAL –2 (L)	IN	Not used
49	P77	V. REC	IN	
50	P76	SSG READY (L)	IN	
51	P75	(H)	–	
52	P74	(H)	–	
53	P73	(H)	–	
54	P72	(H)	–	
55	P71	(H)	–	
56	P70	(H)	–	
57	VDD	LOGIC 5V	–	
58	AVDD	ANALOG 5V	–	
59	VREF +	4V	–	For A/D, D/A CONV.
60	DAC1	IRIS CTL	OUT	For EXPOSURE COMPENSATION
61	S/H1	DASH1	–	S/H CAPACITOR for DAC1
62	DAC0	ZOOM SPEES	OUT	ZOOM SPEED SELECT
63	S/H0	DASH0	–	S/H CAPACITOR for DAC0
64	ADC3	∞SENSOR	IN	MASTER LENS ∞POSITION DETECT

Table 8-7 IC502 pin functions